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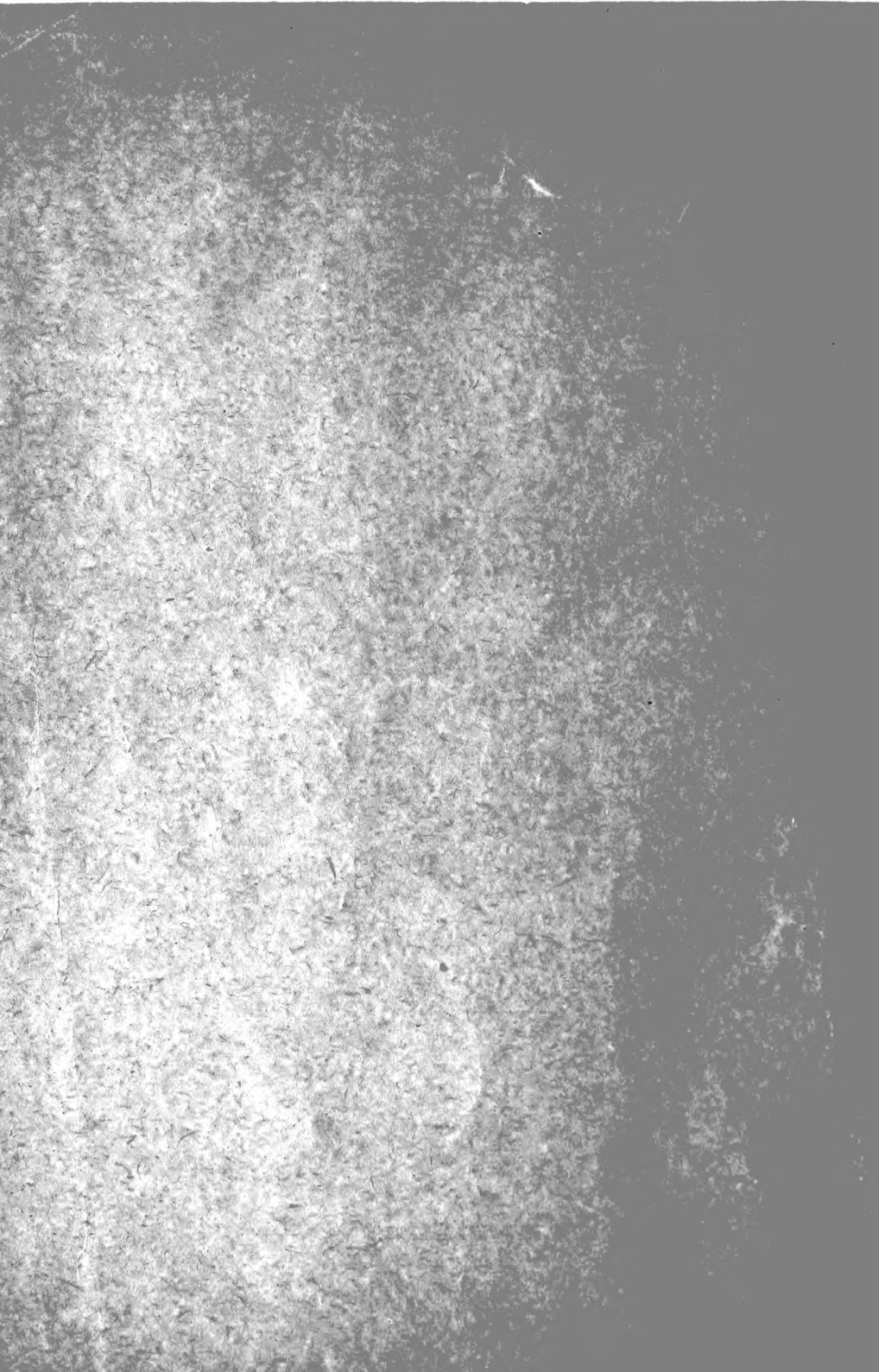
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*The*  
*Hoosier Naturalist*  
*Vol. I*

W. O. EMERSON,  
HAYWARDS, CAL.



THE  
HOOSIER NATURALIST.

PUBLISHED FOR THE

ADVANCEMENT OF POPULAR SCIENCE,

—WITH—

ORNITHOLOGY, OOLOGY

—AND—

TAXIDERMY

AS SPECIALTIES.

—O—

VOLUME I.

—O—

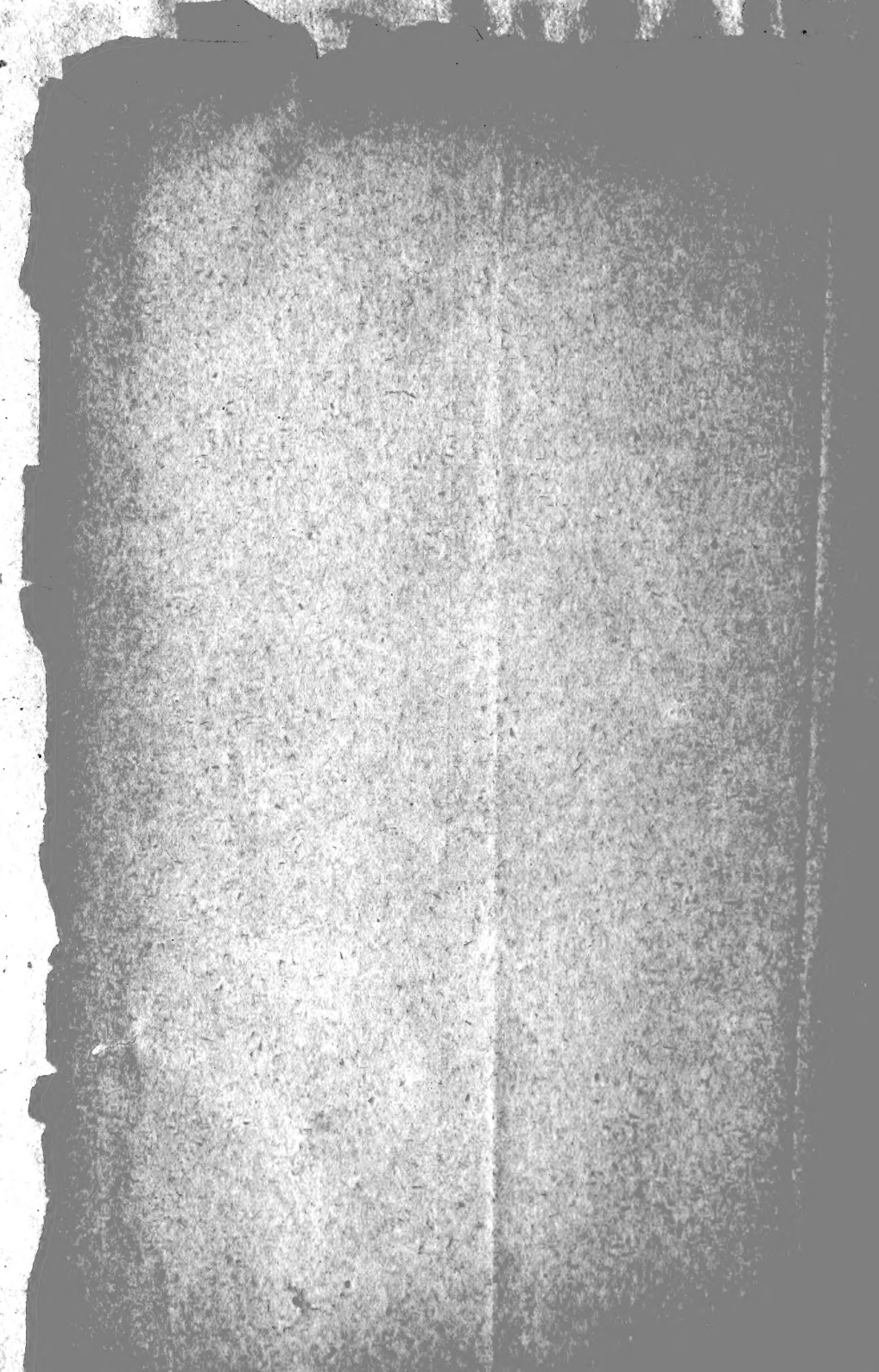
VALPARAISO, INDIANA.  
"IDEAL" STEAM PUBLISHING HOUSE.  
1886-87.

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# THE HOOSIER NATURALIST.

VOL. 1. No. 3. VALPARAISO, IND., OCT., 1885.

{ PUBLISHED MONTHLY.  
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## THE ENGLISH SPARROW.

*Passer Domesticus.*

We hear the note of a Stranger bird  
That ne'er till now in our land was heard:

He meets not here, as beyond the Main,  
The Fowler's snare and the poisoned grain:

For the Old World Sparrow is welcome here.

And the Army worm and the Hessian fly  
And the dreaded Canker-worm shall die:  
And the Throp and Slug and Fruit-moth  
seek

In vain to escape that busy beak:  
And fairer harvests shall crown the year;  
For the Old World Sparrow at last is here.

*Bryant.*

Yes, at last he is here, and a noisier, dirtier, more disagreeable and quarrelsome little fellow never came to our hospitable shores. As near as we can learn he was introduced by Messrs. Reiche in 1858 and liberated in Central Park, New York City. About that time they were for sale at bird stores in New York for from \$2.50 to \$3.00 per pair. Immense sums were spent to introduce the birds into America, and now they are abundant in nearly every town and city in the Union. They are very hardy and extremely prolific, withstand with ease, apparently, our most rigorous winters and rear as many as four broods to the season with seldom less than four to the brood, and frequently six birds.

It was supposed that they would be of great benefit to the farmer in destroying injurious insects, and they were brought here for that purpose.

We were not content to follow the advice and experience of the mother country where they were snared by the hundreds and poisoned by the thousands, but we must import them here, and now in less than 30 years there comes from the entire length and breadth of this great Continent one universal cry to exterminate the pest.

Other birds cannot mingle with them. While the sparrows associate with each other all well enough, they will not permit another bird near their abode, but drive them away unceremoniously.

We have noticed them in great numbers in all the large towns and cities we have visited for the past ten years. They boldly build their nests back of shutters and in every place where it is possible to put them, apparently placing great confidence in us.

During the entire winter we could look out of our window and count from twenty to fifty of the smutty fellows flitting merrily about on the bare space at the corner of the house where they were busily engaged in picking up bits of gravel and whatever else they could find. We often wondered they were able to find a living at all and can scarcely conceive how they manage to withstand our severe northern winters. Whether all the indignation lately expressed against the English Sparrow is just, we are not prepared to say: We do know however that they are dirty looking, have dirty habits, are noisy excessively so, and extremely quarrelsome as well. We believe that they are not needed and should be exterminated if for no other reason than their persistence in driving away other birds.

## NATURAL HISTORY IN THE SCHOOLROOM.

*By Mrs. O. P. Kinsey.*

DEAR HOOSIER NATURALIST:— I have made some commandments for you. The first is; Thou shalt not in all time to come, say, "Mrs. So and So has promised something for our next." The second is like unto the first and reads: Neither at the closing of a term, nor the opening of the same, nor yet during Vacation, shalt thou call upon or even hint at an item from a teacher, especially if that teacher is going to a far distant country to get rest and recreation, for certainly a two-weeks vacation is a delusion and a snare. It stretches out beautifully when you are starting in and looking forward, but it dwindles into a very small space when you have reached the end, on looking back over it. In the opening of a new term and a new year's work there is time for a suggestion only.

Educators are all the while mourning over the lack of mental training in our Public Schools and urging us to teach our pupils to think and reason; but how shall a child or man either, think if he has nothing to think about? I believe we can make a long stride in that direction by cultivating and developing our power of observation, a faculty in which most persons are remarkably deficient. Place an object before a number of grown-up, intelligent persons and it is astonishing how few will see anything more than the barest outline. There is so much in the world to which with the naked eye we must always be blind, that it seems a pity that no one will open our eyes to what we might see. I have no very bright hopes for persons who have reached maturity, though of course all can improve, but the children, see what might be done for them. Teachers of our district, primary and intermediate grades must do the work if

it is done at all. Give us less Arithmetic and Geography and Grammar if need be, and teach us to observe the beautiful and wonderful things all about us. One does not have to have studied books on Zoology or Botany or Geology in order to study the animals, plants or rocks. I think a teacher could not spend time more profitably than in teaching his pupils to notice the leaves on the trees, encouraging them in getting a collection of the different kinds. The same thing could be done with the rocks, and every child will be interested in and delighted in collecting butterflies, beetles, flies, ants, and bugs of all kinds.

I suppose for the reason that we are animals ourselves, a lively interest can be awakened in both children and grown-up people for even the lowest forms of animal life. Let the boys bring some fish-worms and teacher and pupils study them. Measure them, notice the blood vessel extending the whole length and the red blood moving in the vessel, place them on the ground or on a pot of earth and see how quickly they go into the earth, and then tell the children that they eat their way through the ground; actually swallowing all the earth they excavate. Then should the teacher read Darwin's "Formation of Vegetable Mold" and tell the children what a long time that great man spent in studying and experimenting on those simple worms and what wonderful things he found out about them. The book costs about one dollar and a half, and ought to be in every teacher's library, though one can for thirty-five cents get a small pamphlet, "Worms and Crustacea," by Alpheus Hyatt, published by Ginn & Co., Boston or Chicago, which gives a good description of Angle Worms, also of the Lobster and the Crayfish.

Then there are the birds, so many kinds, so beautiful and so useful; and their nests, how wonderful the structure! Get "Homes without Hands," if you wish to read anything on that subject. Then the eggs; if the boys must rob bird's nests teach them

to blow out the contents of the shell, label them and make a collection. I know several boys who have very good collections.

Other things could be suggested but every teacher who has a heart for the work will think of many ways, the only trouble is, teachers pound away on fractions, interest, roots, moods, tenses and rules, and neglect far weightier matters.

If any one would try quietly and faithfully to arouse such an interest, and succeed—and that is assured before hand—he will find less difficulty in governing his school, less trouble in governing himself, less trouble in getting compositions.

What child could not write what he had learned about a bird, a nest, a butterfly or even a fish worm? But more than all this he is teaching them habits of observation that they will use all through life and that must make them intelligent men and women. It is teaching them things to talk about so they won't have to gossyp about each other, simply because we are social beings and must talk, and if we learned nothing in our school-days except Fractions, Roots and Interest, Verbs, Prepositions and Conjunctions, it would puzzle the best of us to carry on a very animated conversation on such subjects.

### THE LOON.

The Loon is a Winter visitor to Florida. He generally comes here (on the St. John River,) in January or after the first cold spell and stays often as late as April. They never comes nearer shore than one-fourth of a mile, fly low,—for quite a while touching the water before they seem to rise,—then only a few feet above, and make a loud flapping and splashing noise which can be heard a long distance. They always stay in flocks and off the point here any winter's day one can see hundreds of them. The Sea-gulls fly circling around them screaming wildly. I don't know if they nest here, but I don't think they do.

F. C. Sawyer, Beauclerc, Fla.

### MONGOLIAN PHEASANTS.

Several weeks since there were received in Portland, Oregon, a consignment of living Pheasants of several species and numbering Sixty individuals, sent by Consul Denny, of Tientsin, China, to the people of Oregon, in the care of a sporting association of this town. The classified list of birds is as follows:

Copper pheasants, three cocks and three hens; green, five cocks and seventeen hens; silver, three cocks and three hens; tragopan, two cocks; golden, eleven cocks and fifteen hens. The birds are a free gift to the people on the part of Mr. Denny and were sent with the design of stocking our woods with them the most beautiful of game birds.

The Oregon Legislature, lately in session, was petitioned to pass suitable laws for their protection, and was asked to make an appropriation of 25,000 hundred dollars for their safe keeping as long as necessary. But the Legislature, with characteristic stupidity, sharply refused to appropriate a dollar, and even declined to pass the wished for legislation. Individual members insolently asked if the organization referred to would not like to have the State build hunting cottages for their entertainment and provide hammerless shotguns for their use while engaged in the exclusive sport of killing these "tenderfoot" birds. This is considered a rather good joke in Oregon, the scrubby part of whose population have no sympathy with such refinements as game preserving, the introduction of new species, etc.

The sporting club still lives however, and have shipped the birds to an island in Puget Sound called Protection Island, where they will be set free to breed at will, and cannot be disturbed, as the islet is the property of one man, apparently a philanthropic individual, who promises to entertain the strangers without money and without price. It was a stepmother's welcome that the poor feathered creatures

got in Oregon, and but for the kind fellow on his lonely domain, they might have been adorning some Taxidermist's window now. Hang the Legislature, says everybody. They only represented the mean side of Oregon human nature, and not a particle of its manliness and generosity. The hunting club can exist without their aid, and the pheasants may live to scratch the dirt over the graves of Senators and Representatives. If you like to see handsome birds, you should have gazed upon these sixty. They are a bewildering mass of silver, bronze, golden, speckled and green. They look when moving like a dozen solar spectrums all mingled and tangled together. Some of them have tails two feet long, like that of a Bird of Paradise. They look too gorgeous to be eatable, but are said to be surpassingly good broiled or roasted. May their beautiful tribe increase! BARRON.  
—*Forest and Stream.*

### HUNTING EXTRAORDINARY.

A Jerseyman has adopted a method of catching ground hogs which will probably draw the attention of the Society for the Prevention of Cruelty to Animals to his case. He catches a land turtle, which are numerous in that locality. Through its shell at the tail end he bores a small hole. Taking a ball of candle-wick, he unwinds a foot or so of the wick then fastens it so no more will unwind. Tying the end through the hole in the turtle's shell he saturates the ball with kerosene. Taking the turtle to the mouth of a ground hog's hole he puts it in and touches a match to the saturated candle-wick. The heat from the burning ball starts the turtle into the hole and keeps it going. The fiery procession alarms the ground hog, and in a very few minutes he comes tearing from the hole and falls an easy victim to the hunter. When the turtle reaches the limit of the hole, being still prompted onward by the fire in his rear,

he turns and marches back again, and when he emerges from the hole the burning ball is removed and he is given a rest until he is wanted for the chase another day. The Mackerly system of hunting ground hog is said to have revolutionized the sport in that part of Jersey, all the famous ground hogslayers having adopted it.—*The Semi-Tropical.*

### CALLING QUAIL UP TO BE MURDERED.

A Sportsman at Baxley, Ga., has a trick about calling birds. He says that the whistle of the male and female differ materially. At this season of the year the male birds are easily called up by giving the call of the female. The male seems to say "Bob White" and the female, "boy see." The editor of the local paper tells how this trick works: Having secreted ourselves he gave the female call and here one came right straight for us. Sometimes they will come flying and pitch close to your feet. We were out but a short time, and we killed five. Mr. Barnes tells us that he generally gets out in his buggy, calls them to him and kills them at short range. He never kills a female for they will not come to the call.—*Savannah News.*

### A LITTER OF SNAKES.

For The Hoosier Naturalist.

I captured a common garter snake not long ago and put it with its mate in a chalk box. Several weeks later on opening the box, I found to my surprise a number of young ones.

The largest one was  $7\frac{1}{2}$  inches and the smallest which was the last one born, was  $4\frac{1}{2}$  inches long. There were nineteen of them, and their average length was 6.38 inches.

I am sorry that I did not permit some of the little ones to live, for a time at least, but I made alcoholic specimens of them immediately. COLLECTOR.

## ODDS AND ENDS.

The Seventeen-year locusts have appeared in this county within the last few days thus violating their custom and calling on us twice in their usual time, seventeen years.

At Portland, Oregon, a sea serpent has been captured, that seems to puzzle the Naturalists who have seen it, it being entirely different from any reptile ever before captured. We hope to be able to give a full account of it soon.

Taxidermists are earnestly requested to contribute to that department of The Hoosier Naturalist. All students of Natural History should have some knowledge of this art, as it is impossible for one to save specimens at all times unless he can save them himself.

At Ladoga, Ind. the Seventeen-year locusts were so numerous that the farmers say the hogs and farm fowls grew fat by feeding on these luxuries which they partake of but once in a lifetime. One farmer says his hogs actually refused corn and swill while the locusts were so plentiful, preferring to feed on these insects.

One Swallow does not make a summer. Do you know I have no patience with such talk? Of course one swallow does not make a summer, nor yet two millions of swallows. If all the swallows that ever were, are now, and ever will be swallowed, world without end, were to come flying along in December, they wouldn't make a summer. No Sir, not one little mite of a summer two days long; and if there was not one lone solitary swallow in all this wide world, next summer would begin sometime along in June and whoow it up into nineties, for three straight months without any regard to the presence or absence of swallows.

What have the swallow to do with making the summer? BURDETTE.

## BUYING WILD ANIMALS.

The one place to buy animals is in Hamburg, and it has really become the animal centre of the world. The largest dealer there is a man named Hagenback. His place is visited by showmen from all parts of the world, and his own establishment is a wonderful exhibition itself. I bought from him the following animals for Cincinnati: One pair camels, five years old, \$500; one camel gelding, the largest Hagenback ever saw, with a saddle which will carry six children, \$350; one pair red Asiatic kangaroos, \$400; one male great kangaroo, \$375; one pair zebras, \$1,300; one pair hyenas and Esquimaux, dog (happy family) \$85; one pair brown Russian bears, \$525; one pair lion-slayer baboons, \$250; one male dog-faced baboon, \$275; one pair llamas, \$400; two pair Cashmer goats, \$350; six pair Malagan geese, \$200; four pair North sea wild ducks, \$100; one Lowenberger dog, \$225; one tapir \$1,500; one pair ant bears, \$400; one young chimpanzee, already partly trained, \$2,000.

"I am also negotiating for and expect to receive on the same steamer with the above, one pair of handsome black panthers, for which \$800 is the price, one pair of yearling tigers, \$800, and a single horned rhinoceros, which will be presented to the garden by a New York city merchant. I have also hired from Hagenback four seals, which are now on exhibition in Paris. They are trained by a Dane, who will come with them. They are taught to fire a gun, lie on their backs and smoke a pipe, play a violin and fire a cannon. They are on exhibition in a large tank, and the Dane throws his children headlong into the water, and when they cry for help the seals swim up to them and push them ashore, supporting them with their fins. They are now the wonders of Paris, and will, I think, be a great attraction in Cincinnati. I will also have an elephant which is trained to ride a velocipede, and fifteen ostriches, and fifteen camels, which are ridden by thirty Zulus in a race.

The above is from an interview with A. E. Burkhardt, of the Cincinnati Zoological society, in the *Commercial Gazette*.

## The Hoosier Naturalist,

Published Monthly at 50 cents, a year.

A. C. JONES, R. B. TROUSLOT,  
EDITORS AND PUBLISHERS.

*Items of interest solicited from young  
Naturalists or Collectors.*

*Terms of Advertising made known on  
Application.*

Entered at the Valparaiso Post-office as second-class mail matter,

### OUR NEW YORK AGENT

Is Ph. Heinsberger, 151 Franklin Street  
and 89 Delancy Street, New York.

### TO ADVERTISERS.

The circulation of THE HOOSIER NATURALIST will be 5,000 copies each month. We feel assured that you will be benefited, if you will favor us with your "ad" for, three, or twelve months as you see fit. Send for advertising rates.

THE HOOSIER NATURALIST, OCT., 1885.

DEAR readers, we come to you this month in our new form and dress because we have resolved to be in style and fully up with the times, not only in what we present to you as reading matter, but in the general appearance of our paper.

Our friends continue to send in so many flattering letters that it is out of the question to give them space in this issue, but to answer all at once let us say to you, we are the most thankful beings we know of, and are ready for more letters and a few more subscriptions. We are about as happy this month as editors ever get to be, and hope to make Five Thousand other Lovers of Nature smile when they see THE HOOSIER NATURALIST in its new form. Don't fail to show your paper to some one else who ought to subscribe for it and as soon as possible take his subscription for one year and send us his name and money.

There is another thing we must urge upon our subscribers and that is, more contributions, and send us notes on ornithology,

especially on the migration of birds, as this is the season when that subject is most interesting.

R. R. Moffitt has a live grey eagle.

THE Popular Science Monthly has an illustrated article on the White Ant, by Henry Drummond, which is exceedingly interesting. Our readers should obtain an October number and judge for themselves.

Friend Hill has sent us a lot of his Mazoon Creek Fossils. They are the finest we have ever seen without an exception. We can honestly say that every one who wants fine fossils should not fail to send him an order.

THE November number will contain departments of Botany and Geology for which we have amply arranged by securing promises of articles from the pens of specialists in these branches of Natural History. Short correspondences to these departments are earnestly solicited.

We are prepared to take subscriptions for THE SOUTHERN GEOLOGIST with THE HOOSIER NATURALIST for the price of THE H. N. alone. In other words any one sending us fifty cents will receive both papers for one year. See "ad" of S. G. on another page.

AFTER Jan. 1st., the price of the HOOSIER NATURALIST will not be 50 cents per year, but will be 75 cents or \$1.00. Our friends say it is too cheap and we realize the truthfulness of the statement, so if you want to do a bit of charity work, just have your neighbors subscribe before the close of this year.

HEREAFTER we shall issue the H. N. from our own press as this month, but it will be on a better quality of paper; we are also doing a large amount of job work of every kind at very low figures. If you need any kind of printing done, be sure to get our terms before having work done elsewhere.

Vol. I. No. I. of THE SOUTHERN GEOLOGIST presents itself brim full of interesting notes for the geologist.

TIDINGS FROM NATURE is improving in appearance. Brother Downs has our congratulations for his merited success.

To our friends we would say that while our stock of books is not large, yet we are prepared to fill orders for all the leading works on natural history at publishers prices.

Messrs. Russel & Stien managers of The Great Marengo Cave, recently presented the Normal museum with some fine specimens of Stalactites. They were brought in by Mr. Landen.

P. T. BARNUM has erected a fine fire-proof building for Tufts College at Bridgeport, Conn., which is to be known as "The Barnum Museum of Natural History." When he promised them the skin of Jumbo he probably did not expect to fulfill his promise so soon. The skeleton was presented to the Smithsonian.

Our table just now is so full of Amateur papers that it will be utterly impossible for us to notice them all. "The Ornithologist" with its new cover presents a very tasty appearance. It is after our own heart. Brother McCollum has our thanks for back numbers. Brother Skinner ment we should have a supply of "The Agassiz Journal," as we have been favored with three copies for which he has our thanks. He is making it hot for all the swindlers and dishonest advertisers generally. He certainly deserves much credit for the fearless manner in which he is exposing these various schemers.

The Agassiz Journal is certainly worthy the support of all curiosity collectors. See 'ads' of these papers on another page.

ARRANGEMENTS are being made for a meeting at Indianapolis, during the holidays, for organizing an association which will enable the citizens of Indiana, who are interested in the advancement of science, to meet at stated times, for social intercourse, for the exchange of ideas, and for comparison of the results of scientific study. Now all who are in favor of this movement are requested to think of the needs of such an organization, and of the best means for making its life most successful. An early reply is solicited with a full expression of your ideas on the subject. Address your communications to Amos N. Butler, Brookville, Ind, chairman of the committee.

Such an organization has been in successful operation in Illinois and other states and there is no reason why a similar one cannot be sustained in Indiana.

The committee has our hearty co-operation in its undertaking.

"AGASSIZ is one of the great names in the domain of science. His original researches in various departments of Natural History and his contributions to its literature were of so high rank and authority as to assure him a permanent and conspicuous place among the world's teachers. His scientific investigations were so cosmopolitan, including North and South America, Great Britain and Continental Europe, and the Atlantic Ocean, that his fame is world-wide. But to a host of personal friends he was no less charming in his personality than he was illustrious as a scientist. Mrs. Agassiz, who has before given the amplest proof of her literary skill and of her ability to enter intelligently and with sympathy into Prof. Agassiz's pursuits, has written in the most delightful manner the story of his life, and woven into the narrative a large number of his letters the whole forming a peculiarly attractive biography and a work of remarkable value and interest to all students of Natural History."

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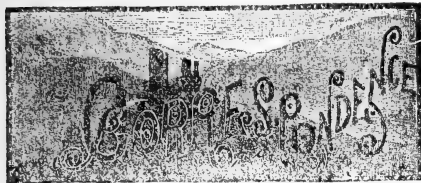
We have received from the Boys' Silk  
Culture Association, a neat illustrated  
pamphlet, having "An Account of the Hab-  
its, Changes and Diseases of the Bombyx  
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that matter, could not invest 25 cents to a  
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al years occupied the attention of many  
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*School and Home*, published by Mr. Wil-  
liam L. Thomas, of that city, as a portion  
of its educational series in the St. Louis  
schools. This is a well-merited compli-  
ment to Mr. Thomas and a recognition of  
the efforts he has put forth within the past  
year and a half to bring the *School and  
Home* up to a standard that should make  
its way purely on its merits as an adjunct  
to the text-books in every day use. The  
current number comes in improved form,  
being neatly bound in an illustrated cover,  
and now that it has succeeded in attaining  
official recognition, the way seems to be  
open for still greater improvement and  
an enlarged sphere of usefulness.





### THE HOOP SNAKE.

For The Hoosier Naturalist

One of the most wonderful snakes which inhabit the country of MONDUM, is the Hoop Snake. The description and characteristics of the Hoop Snake are as follows: It is from 5 to 8 feet in length, in some instances it exceeds this, but very seldom; from 2 to 4 inches in diameter, and the body of a dark purple cast, its tail terminating into a cartilageneous tissue with a sharp dense bony spear of a green color which is used as its weapon; its head is short and thick well adapted to receive its spear pointed tail, which it does when disturbed or in motion. There is a gland situated between the upper lip and jaw that secretes a poisonous fluid which it ejects in the groove of the spear. When at rest it takes an angular position, but when disturbed or after prey it throws its tail over its body and is received in its mouth, and by a quick movement it starts to rolling like a hoop from which it takes its name.

It is the most deadly of all venomous snakes; animals have been known to die from one to two minutes after being pierced by its spear; and trees have been known to wilt in an hour after being accidentally struck by them. The following is told of an old negro: One day coming home from work he spied on of these snakes laying on the ground, and without thought, he tossed a stick at it exciting the snake, upon which it immediately received its tail in its mouth and gave the darkey a chase gaining at every step the darkey made until it was within about four feet of him when he jumped behind a tree in order to let it

pass him but instead it struck the tree, burying its spear. It could not get loose, and the darkey badly scared, came from behind the tree and seeing it lying fast to the tree killed it.

The above statement is the opinion entertained by the majority who know anything about the Hoop snake. Now if any one doubts the above or knows anything to the contrary, I would be glad to have them express themselves through the columns of the H. N.—E. K.

### A TAXIDERMAL HUNTER.

J. T. Jones, a professional Taxidermist located at Malden, writes,—Have gunned all over the Continent. I have at present one of the finest private collections in the country. Will give you any information, relating to Natural History I can. I think the H. N. will be a success.

### AN INSECTIVEROUS KITE.

I have just received from the north a fine male, Swallow-tailed Kite. The stomach was packed full of large coleoptera and two small green frogs. The throat contained about 50 winged ants. This bird should surely not be classed with the injurious ones.

E. L. BROWN,  
Durand, Wis.

### A LIVE GRAY EAGLE & SEA GULL.

FRIENDS J & T:—I read the H. N. with much interest. I am working at Taxidermy what spare time I have. This summer I put up quite a number of birds, etc. I managed to get a large Gray Eagle which is alive and doing well. He was captured in Jasper Co. I also have a large Sea Gull measuring five feet from tip to tip. He was taken in a steel trap last June and is a fine fellow.

R. R. M. Lafayette, Ind.

## BIRDS AND THEIR FEATHERS.

The best time to see perfect feathering is in the winter, or onward to the spring; then, after a very short honeymoon, the birds settle down to domestic drudgery with exemplary ardor, with the result that at the end of a few weeks their tail-feathers are rough and irregular, their pinions worn and ragged from constant contact with the nest in sitting; and by the time their new suit comes at midsummer they are more than ready for it. The spring of course, is the climax of a bird's life. With scrupulous care he arranges hourly his feathers, all their markings are seen to perfection, and many peculiarities of decoration are then and then alone displayed. The fleshy combs and portuberances become scarlet and enlarged, and anyone who has not seen a pheasant or a grouse at this season of love would be astonished at the alteration from his normal state. The cock pigeon swells that part of his body most adorned with iridescent feathers to make the grandest show he can; and every humble finch and small bird brushes up his modest finery. It is said that not a bright-colored feather on any bird's body remains idle or undisplayed. If birds have bright-colored tails they raise them to their highest and fullest and abase their heads; if bright heads, then they shake out their plumes, their eye distends, and their wattles swell; and if as in some cases, they have large tippets of feathers falling on both sides of the head they contrive the bewildered hen shall see all the glories of both sides at one glance, and so drag all the feathers of the far side round to the near side, making such a high mass that the face is nearly hidden, and the projecting beak alone shows where the head must be. All this done for the hen's benefit, and it is only done when she is near; it all turns on her existence and ceases if she be absent.—*Magazine of Art.*

## PARROTS AND THEIR CARE.

To keep Polly in good health, the diet question must be most carefully handled. The subjoined bill of fare is the only suitable one to keep them in good health, and enable them to enjoy a happy old age.

Parrots in their wild state live upon ripe fruit, and the tame ones also enjoy it. Sour or unripe fruit is very injurious to them. Seeds they also live upon when in their native land, and so destructive are they to the crops, that boys mounted on ponies are occupied in driving off the gray parrots, which we understand, fly in flocks of 10,000 at a time; and from our own observations of what one bird can do in the way of destruction (as an apple is soon entirely picked to pieces and thrown piecemeal away, the seeds only being eaten), we can easily calculate what 10,000 birds can do in a short space of time. A whole orchard must become ruined in less than two hours if the birds are allowed to remain in it.

A tin of hemp seed or crushed Indian corn should be their daily diet. Alternate it by giving cold boiled rice, with a separate allowance of well soaked bread, with the water fairly squeezed out; bread is soaked thoroughly when boiling water is poured upon it. Never feed your bird with hot food; their beaks are very sensitive. By no means give your parrot any animal food, not even a bone to bite, as some people say, for amusement. Animal food renders the bird savage, ill and unhappy. It causes the bird to pluck out its feathers. What for? Why, to chew the quill to procure a taste of the animal food when the master or mistress is not inclined to give it any. The bird is taught to become a cannibal, and he becomes a veritable lover of flesh which he is not particular in seizing hold of, whether it be upon the thumb or finger bone. The practice of giving the birds bones to bite is not at all a good one. It teaches them to destroy their perches, or tear anything they can lay hold of. The parrot requires

no more amusement than to be taken notice of, spoken to, sang to, whistled to, and carressed by those whom he has a preference for; no one else should be allowed to touch him. A teaspoonful of water once a day he will enjoy, but no trough of water must be put in his cage. Never give your parrot the least particle of butter, fat, milk, or greasy food of any description.

When you see your parrot continually pluming itself, you may be sure it is in good health. Parrots seem to possess a little of our vanity, for they love admiration, while ill health renders them, as it renders us, careless of it. Keep your bird out of draught. Cover it over at night, then repeat several times any sentence you wish it to say. Very often they learn it after two or three nights' practice. Its attention is not attracted by anything, save the sound of your voice, when it is covered over.—*Detroit Free Press.*

### THE WHITE PELICAN.

The White Pelican is seldom met with as far north as Valparaiso, though west of the Mississippi, and south to Central America, it is a common bird. It is awkward looking on land, its flight though is easy, and it swims gracefully. In color the male and female are alike.

This peculiar bird seldom or never dives for its prey; it swims with its neck extended, the upper mandibill just out of the water, "the lower being laterally extended and ready to receive any fish or other food may chance to come into the net-like apparatus attached to it." They prefer small fish, several hundred often being required for a full meal. The parent feeds its young with partially macerated fish disgorged from the crop.

We have just received a letter from near St. Louis, Mo., stating that they are there by the hundreds though somewhat shy. From the same source we also received one of the birds which is a beautiful spec-

imen. It is  $72\frac{1}{2}$  in. long; expanse, 107 inches; wing,  $38\frac{1}{2}$  inches; bill, 15 inches. The culmen has no crest, this occurring only with the male during breeding season, and is shed and renewed each year. Pelicans are gregarious; they build a rude nest of sticks in some low bush near the water, or simply scrape together a low mound of dirt. The eggs are white, oval, one or two, and are covered with a calcareous deposit. Several years ago we received one of these birds from Beardstown, Ills., but it had lain too long and we were compelled to abandon it.

### NEW BIRD DISCOVERY.

Not many months since (?) the celebrated Oologist, Frank H. Lattin, of Albion, N. Y., accidentally caught sight of what appeared to him a new and interesting specie of bird. Lovely to behold was this bird and fully did he realize the importance of his discovery. But as 'a bird in the hand is worth two in the bush' he set about making the capture. Long and patiently did he work, many were the snares that he set, thick the bird lime, and ample was his reward, which he announces to his friends, on a neatly printed card as follows:

"FRANK H. LATTIN,—MARY E. BULLARD, Married, Wednesday Evening, Sept., 9, '85 at 7:30 o'clock, at Congregational Church Gaines, New York."

The happy couple have our heartiest congratulations. May their pathway ever be strewn with thornless roses.

It is now quite evident to all his friends why the necessity for selling "*The Young Oologist*."

O. L. Southerland of Three Oaks, Mich., has a peculiar happy family. It is composed of two large rattle-snakes, a black and a blue-racer, and several milk snakes. He says they are living very peacefully together and while the rattlers are not bothered, the others do not object to being handled.

### GOAT SUCKER OIL.

"Here is an oil which is something of a curiosity," said a collector, showing the reporter a liquid of remarkable transparency and almost colorless. "It is guacharo oil from Ecuador. And what do you think it was made from? That bottle contains all that is left of two of the young of the oil bird, or Trinidad goat sucker—or I might better say that the fluid is two of the goat sucker's young, for what was left of them after this oil was tried out of them isn't worth speaking about. The goat sucker is a nocturnal bird, something like our whippoorwill, except that it lives in the deep, dark caverns that abound in Ecuador, Venezuela, New Granada, Trinidad and other South American regions, and that its diet consists entirely of the abundant oleaginous fruits of those countries. A few days after the young are hatched they become literally balls of fat, and are described as being the most curious looking creatures imaginable. When the fat is removed from the young birds there is scarcely anything left but their tiny skeletons. The fat is boiled down at once, fires being made at the mouth of the caverns as soon as the raids on the nests are over. The oil is run into earthen jars. It requires no further purifications or refining, as its natural state is purity itself. It is limpid as you see it here. It is used both for cooking and illuminating purposes, and has been pronounced superior to olive oil. It burns in a wick with a white flame, which emits no smoke. Even with the careless methods of the natives the oil will keep sweet a year."—*N. Y. Times.*

Mosquitoes, flies and other pests will not enter a room in which the castor-oil plant is growing, or, if they should enter it, they are soon found dead beneath the leaves.—*Chicago Herald.*

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# THE HOOSIER NATURALIST.

VOL. 1, No. 4.

VALPARAISO, IND., NOV., 1885.

{ PUBLISHED MONTHLY.  
50c. PER YEAR.

## LOSING WILD BEASTS.

### DIFFICULTY IN ADMINISTERING PHYSIC TO ANIMALS IN THE ZOO.

#### Camels the Greatest Sufferers—Dieting an Indisposed Puma—A Chimpan- zee with a Cold—Trouble in Giving Medicine.

Visitors to the Zoological Garden during the last summer were struck with the general air of debility among most of the animals. Nearly all of them either moved about listlessly or else moped in corners and refused to move at all. The chimpanzee kept her blanket tightly drawn around her shoulders all through the week and no dainty could tempt her to leave her favorite corner. Even the monkeys were less clamorous for favors and the toothsome peanut palled on their usually insatiable appetite.

The large animals, and especially the carnivora, suffered even more than the little animals. The lions and leopards stopped their ceaseless promenade and lay all day long with their noses between their paws watching events through their half-open eyelids. Superintendent Brown explained this state of apathy among the animals.

"There has been more sickness among the animals during this summer than at any time in the history of the garden," he said. "Contrary to the rule there was very

little suffering among them during the hot spell but when the break-up came and the mercury took such a terrible tumble nearly every animal felt the effects of the change and almost a majority of them were taken sick. The camels were the greatest sufferers. Every one in the garden was prostrated with dyspepsia and a general derangement of the alimentary canal."

"One of them is still very ill and it is not expected that he will recover. Three or four of the carnivora were sick, and one of the pumas was very ill with cholera morbus. He refused to take any nourishment and the only thing he could be induced to take was an occasional swallow of water. We tried for two days to give him a dose of bismuth and opium, but we had to give it up. The medicines were diluted with water until it was impossible for the human palate to detect their presence, but the puma discovered it at the first sniff and refused to touch it. He didn't eat a morsel for five days, but he came around all right."

Another puma was prostrated. Bennett's wallaby, a variety of the kangaroo, caught a severe cold at the time of the sudden change and died, after a brief illness of pneumonia. One of the sealions was prostrated by the heat just before the cold wave came, and probably died of congestion of the brain. I made a post-mortem examination of his body and could find no other cause of death. The chimpanzee was also severely affected by the change. She caught a cold in her head and refused to eat anything except an occasional piece of banana or orange.

"We have had her for three years, and this is only the second time that she has been ill. During these spells of sickness we treat her the same as any human invalid. We never try to force her to eat, but wait until nature asserts itself and then tempt her returning appetite with any little delicacy she might crave. At one time she went three weeks without tasting a morsel, except a few pieces of fruit, but when her appetite returned she ate like a pig. Many of the small animals were seriously disposed, but most of them simply suffered with disordered stomachs and loss of appetite.

"In caring for sick animals we generally rely on the ordinary veterinary treatment. We use very little medicine, beyond an occasional tonic, astringent or laxative. In many cases the administering of medicine works more harm than good. I find our best reliance to be in careful watching and dieting. Aside from the harm the medicines might do a wild animal there are other considerations against administering them that are much more important. In the first place it is hard to tell what is the matter with a wild animal when it is simply off its feed. It is not practicable to feel its pulse, listen to the beating of its heart, and do various other things usual in diagnosing a case in a human being.

"It is generally a wild guess in determining what ails a wild beast. When you have decided what ails it, however, the next question is, 'What shall I give it?' Drugs have a different effect on different animals. A dose that would kill one animal will have no effect on another. But even if you knew what to give it, the next and most serious question arises, 'How shall I administer the medicine?'

"The greatest difficulty of course is met with in giving medicine to the larger animals. The process is always attended with danger, and in many instances the patient dies either from fright or shock to the nervous system. In order to administer a dose of medicine to a wild beast it is

necessary to bind it down with ropes, and when it is firmly secured drench it in the way practiced in dosing horses. This treatment always results in a great shock to the animal's nerves, and frequently produces death. A wild animal will not permit itself to be handled like a domesticated animal. It will always lash itself into a fury, and in this lies the danger of overcoming it by rough measures; and still this is the only way that it can be dosed.

"Their sense of taste is so perfectly developed that they can detect any foreign substance on the instant, and will refuse to touch their food. Of course it is often necessary to throw animals for the purpose of cutting their claws or paring their hoofs or making any surgical operation, but we always employ a great deal of care in securing the animal.

"Recently we had occasion to throw a zebra, and it took seven men to accomplish it without injury to the animal. Then again, we must have regard for the safety of the men. A full-grown camel can kick as hard as a whole train of government mules. Many animals we can't handle at all. For instance, you can't lasso a polar bear, as his neck and ankles are larger than his head or feet, and the rope would naturally slip off as fast as you could throw it on. The elephant is the hardest beast to throw, but is less subject to nervous shock than the other wild animals."—*Philadelphia Times*.

### A Feathered Robber.

One day a Naturalist stood watching a chaffinch build a nest, and while inspecting her work, he discovered that there was another interested spectator. The latter was a little wren. As soon as the chaffinch would fly away to find more material the wren would swoop down on the half built nest, and carry off the newly gathered hairs and wisps for *its own nest*. This went on for some time, until at last the chaffinch found out the robbery and chased the little wren so fiercely that it did not attempt to renew the theft.—*Golden Days*.

## Beautiful Birds.

"Birds, Birds! Ye are beautiful things,  
 With your earth treading feet, and your  
 cloud-clearing wing.  
 Where shall man wander, and where shall  
 he dwell,  
 Beautiful birds, that ye come not as well?  
 Ye have nests on the mountain all rugged  
 and stark,  
 Ye have nests in the forests all tangled and  
 dark.  
 Ye build and ye brood 'neath the cottager's  
 eaves,  
 And ye sleep in the red 'mid the bonnie  
 green leaves;  
 Ye hide in the heather, ye lurk in the brake,  
 Ye dine in the sweet flags that shadow the  
 lake.  
 Ye skim where the stream parts the or-  
 chard decked land,  
 Ye dance where the foam sweeps the deso-  
 late strand.  
 Beautiful birds! Ye come thickly around  
 When the bud's on the branch, and the  
 snows on the ground:  
 Ye come when the richest of roses flash out,  
 And ye come when the yellow leaf eddies  
 about.  
 Beautiful birds! how the schoolboy re-  
 members  
 The warblers that chorused his holiday  
 tune,—  
 The robin that chiruped in the frosty Dec-  
 ember,  
 The blackbird that whistled through flow-  
 er-crowned June.  
 The schoolboy remembers his holiday ram-  
 ble,  
 When he pulled every blossom of palm he  
 could see.  
 When his fingers were raised when he stop-  
 ped in the bramble  
 With "Haik! Ther's the cuckoo: how  
 close he must be!"

How often we have closely scanned the  
 tree in which we supposed the cuckoo was  
 hiding, and when about to give up the  
 search, to discover him sitting motionless,  
 bolt-upright, then while admiring his  
 plain plumage and slender form, to be  
 startled by his jerky cries which are said  
 by many to resemble 'Rain Crow,' whence  
 its popular name. The cuckoo with its  
 subdued olive-grey colors is a great favor-  
 orite with us.

Recollections of stories about cuckoos  
 building no nests of their own but depos-  
 iting their eggs in the nests of other birds,  
 had prejudiced us against our American  
 species until seeing the nest and eggs of a  
 black-billed cuckoo in the cabinet of a  
 friend, we learned that *our* birds generally  
 built nests for themselves. Well do we  
 remember our first cuckoo's nest. It  
 was in the forked branches of a low apple  
 tree and was composed of hemlock twigs,  
 loosely thrown together, lined with foliage  
 of the same, and contained one plain  
 greenish egg. The discordant cries of the  
 distressed mother bird as the nest was  
 slowly approached, rang in our youthful  
 ears for many a day afterward. But the  
 desire to possess the nest and egg over-  
 came all feelings of tenderness or pity for  
 the helpless creature, and we secured  
 our prize and walked resolutely away with  
 it though conscience was loudly knocking  
 and as loudly calling, "nest robber," "egg  
 thief," "wicked boy," and the like.

Wonder if it was as hard for our Oo-  
 logical friends to overcome the qualms of  
 conscience in this respect as it was for us?  
 How firmly have we resolved never to  
 take another nest, yet the nest once found,  
 generally went to keep company with the  
 others and in a short time we thought noth-  
 ing at all of "robbing a nest." (?)

The yellow billed cuckoo is one of the  
 most interesting of North American *Cu-  
 culiidae*. With us, (DeKalb Co., Ills.) it  
 has always been a common summer resi-  
 dent, but here, (Valparaiso) it is scarcely  
 ever seen. It arrives about May 15, and  
 remains sometimes till September. It  
 breeds here abundantly, generally placing  
 its frail nest less than ten feet from the  
 ground.

In U. S. National Museum Bulletin,  
 No. 20, Prof. Cones says: "Both species of  
 Cuckoo are notable for their tardiness in  
 completing the clutch of eggs, so that  
 fresh eggs and others in different stages  
 of incubation, may be found in the same  
 nest with young birds." "They also oc-  
 casionally slip an egg in other birds'  
 nests; but the parasitic habit is not estab-

lished, as it is in the cases of various Old World species of this family." Their eggs are a light bluish green and range from 2 to 5 to the clutch, though it was never our good fortune to find a nest containing more than two. A peculiar feature of this bird is the arrangement of the toes, two forward and two backwards, the outer hind toe capable of being brought half round to the front.

### The Mole.\*

The wonderful ingenuity evinced by many animals in the construction of their homes has led the naturalist to persevering researches in tracing out the haunts and ways of those not familiarly known.

It is not often that the lover of nature has opened to him such a rare and curious museum as is exhibited in the volume from which the materials of this article are drawn. The author tells of strange habitations, made without hand, beneath, above and around us—burrows, nests and curious domiciles of every kind, in earth, air, and water. Nor are these presented to the mental vision merely, but are so clearly and elegantly illustrated, that we almost fancy that these strange dwelling-places are really before the eye.

It is impossible, within the limits of a single article, to do more than present to the reader of the Magazine, a specimen of these homes—and this selected from the Burrowers—whose secret localities are rarely noticed, much less investigated, by the ordinary observer.

Yet the burrow is the simplest form of habitation, whether it is in the ground, or in stone, wood or any other substance.

Among the mammalia, the *Mole* ranks first in the list of burrowers. This extraordinary animal which is found both in Europe and America, forms a complicated subterranean dwelling-place, with chambers, passages and other arrangements of wonderful completeness. It has a regular road leading to its feeding-grounds; estab-

lishes a system of communication as elaborate as that of a modern railway, or to be more correct, as that of the subterranean net-work of metropolitan sewers; and is an animal of varied accomplishments.

It can run tolerably fast, fight like a bulldog, capture prey under or above ground, swim fearlessly, and can sink well for the purpose of quenching its thirst.

Take the mole out of its proper sphere, and it is awkward and clumsy, but replace it in the familiar earth, and it becomes a different being—full of life and energy, and actuated by a fierce activity which seems quite inconsistent with its dull aspect and seemingly inert form. The absence of any external indication of eyes communicates a peculiar dullness to the creature's look, and the formation of the fore limbs gives an indescribable awkwardness to its gait.

We need not pity the mole for the dull life we suppose it leads below the ground. There it is happy, and there only can it develop its various capabilities. No one can witness the eagerness with which it flings itself upon its prey, and the evident enjoyment with which it consumes its hapless victim, without perceiving that the creature is exultantly happy in its own peculiar way.

The ordinary mole-hills present nothing particularly worthy of notice. They are the shafts through which the quadrupedal miner ejects the materials which it has scooped out, as it drives its many tunnels through the soil, and if they be carefully opened after the rain has consolidated the heap of loose material, nothing more will be discovered than a simple hole leading into the tunnel. But if we strike into one of the large tunnels, and follow it up, we come to the real abode of the animal.

The central apartment is a nearly spherical chamber, the roof of which is nearly on a level with the earth around the hill, and therefore situated at a considerable depth from the apex of the heap. Around this are driven two circular galleries—one just level with the ceiling, and the other at some height above. The upper circle is



much smaller than the lower. Five short descending passages connect the galleries with each other, but the only entrance into the inner apartment is from the upper gallery, out of which three passages lead into the ceiling. It will be seen, therefore, that when a mole enters the house from one of his tunnels, he has first to get into the lower gallery, to ascend thence to the upper gallery, and so descend into his chamber.

There is however, another entrance from below, by a passage which dips downward from the center of the chamber, and then, taking a curve upward, opens into one of the larger tunnels.

The use of so complicated a series of cells and passages is extremely doubtful, since there is no reason to believe that the owner, instead of retiring to his fortress to rest, often contents himself with lying in the high road. Wonderful as is this subterranean abode, it is not the only one constructed by this animal. A nursery is provided, more extended though simpler, inland with dried grass, and intersected by many passages, so that the mother and young may easily escape from any apprehended danger. The walls of all these passages are rendered smooth and hard by the pressure of the mole's fur, so that the earth will not fall in after the severest storm.

The whole life of the mole is one of fury; and he eats like a starving tiger, tearing and rending his prey with claws and teeth, and crunching audibly the body of the worms between the sharp points. A mole has been seen to fling itself upon a small bird, tear its body open, and devour it while still palpitating with life. Nothing short of this fiery energy could sustain an animal in the life-long task of forcing itself through the solid earth.

A battle between two moles is as tremendous as one between two lion, if not more so, because the mole is more courageous than the lion, and, relatively speaking, is far more powerful and armed with weapons more destructive. Magnify the

mole to the size of the lion, and you will have a beast more terrible than the world has yet seen. Though nearly blind, it would be active beyond conception, leaping with lightning quickness upon any animal which it met, and rending it to pieces in a moment. Such a creature would, without the least hesitation, devour a serpent twenty feet in length, and so terrible would be its voracity that it would eat twenty or thirty of such snakes in the course of a day.

When fighting with one of his own species the mole gives his whole energies to the destruction of his opponent, without seeming to heed the injuries which are inflicted upon himself, exhibiting an extraordinary amount of muscular power concentrated into a very small space.

The mole emerges from the earth with unsoiled fur. This cleanliness is due in part to the peculiar character of the hair, and partly to strong membraneous muscle beneath the skin, by means of which the animal gives itself a frequent and powerful shake.

There are many burrowing animals, but the mole is emphatically *the* burrower—the very type of a creature which is intended to pass the whole of an active existence under ground. He absolutely riots in the exuberance of animal spirits and muscular activity, passing through the earth almost like a fish through the water and giving to its strange and apparently somber life a poetry and an interest which we fail to find in the lives of many creatures more richly endowed with external beauty.—*Homes Without Hands*.

*\*Homes Without Hands For Sale by Jones & Trousnot.*

#### A REQUEST.

We would ask our friends when sending us specimens to select large and showy ones suitable for our private cabinets, as we are not dealing in geological specimens, and already have many hundreds of the cabinet size.

### How to Begin The Study of Geology.

For The Hoosier Naturalist.

Readers of this article, who wish to begin the study of Geology, will probably be either those who wish to use it in their work as teachers in the common schools, or those who wish to know something of the rocks and soils of their neighborhoods. In either case, the first thing to be done is to get a good working acquaintance with a few common rocks and the substances that compose them. This cannot be done very satisfactorily without a little knowledge of Chemistry. The "Chemistry" of the Science Primer Series, published by the Appletons, will furnish all that is necessary in this direction, or any one of the elementary text-books will answer the purpose. Some elementary work upon Geology must be at hand, and the best is Dana's Text-book. After these books have been read carefully enough to find their uses, a thorough practical acquaintance with granite and syenite must be made. This is indispensable. For those living north of Cincinnati or St. Louis an abundance of materials may be found in the boulders, or "hard-heads," scattered over all the country. Granite is composed of quartz, (the chemists call it silica) feldspar, and mica; syenite, of quartz, feldspar, and hornblende. These substances must be thoroughly identified, and the books will show how to do it. The great number of forms which they take, especially in color, must be made familiar by actual inspection of specimens. The causes of the coloring may be learned from a work on Mineralogy, as Dana's, or Bush's. Sandstone must now be made familiar. It is made up of fragments of quartz, and these must be identified by their glassy appearance and the fact that they will scratch glass. The solubility of quartz in water containing an alkali lime, soda, or potassa, must be made plain, for the formation of agates, cameos, and geodes depends upon it. The breaking up of feldspar under water con-

taining carbonic dioxide must be understood, as the formation of shales, clays, etc., depends upon it. The forms of limestone should be studied and identified in the same way, with actual specimens and experiments. How the carbonate marble, chalk, etc., will dissolve under water containing carbonic dioxide must be made perfectly familiar. Marble grave stones become rough from exposure, the marble slabs under the pit of a soda-water fountain soon wear away and nearly all caves are formed in the same way. The subject of crystallization should be mastered so far as to understand how it takes place, and the difference between crystalline and amorphous rocks.

A small cabinet of minerals and fossils should be gathered. These should not be curiosities, but specimens that really show something. For educational purposes, a bit of granite pitched up in the door-yard is as valuable as a bit from a cliff on Mt. Sinai. The educational papers contain the advertisements of dealers who furnish anything which the student may need. Excepting in the most general way, though, specimens from one's own neighborhood are the best, since the great end of the study is, the ability to read the sermons in the stones around us. Specimens should always be labeled, the name and locality, geographically and geologically, being indicated. Those from the same periods should be kept together. A disorderly cabinet is worthless. The wearing and carrying power of water should be noticed, wherever there is a stream or a lake. In the bed of a stream or on the shore of a lake, the pebbles and sand-grains are of the same size; and in a bed of rocks, the same is true. The effects of heat and cold may be seen at the base of any cliff or large stone that has been undisturbed for some years. The ground will be found covered with small particles of the stone.

A word now in regard to books and papers may close the subject. The Science Primers before referred to are excellent. The Aids in teaching Science, published by Ginn & Heath, will be found full of

valuable help. The large Manual by Dr. Dana, and the Geology by Prof. LeConte are admirable books. The Reports of the Surveys of the student's own State will be invaluable. Some of these are expensive and scarce, but a copy can usually be found in every neighborhood, and should be consulted. The people too seldom appreciate the worth of the Reports. In almost every neighborhood some intelligent person may be found, who can be consulted profitably, and a courteous letter to almost any well known geologist, will receive a kind and authoritative answer to any proper question. These gentlemen are exceedingly kind in assisting any young person who wishes help in pursuing his studies.

In conclusion, the way to begin the study of Geology, is to begin it; see much, think more; use books as a cheap and expeditious way of going to school; and take instruction from any reliable source.

H. N. Carver.

### Honey-Eaters' Nests.

A most beautiful pensile nest is made by the *Singing Honey-Eater* in a common Australian tree, popularly called the Myall. The twigs of this tree are long and slender, and the leaves are so narrow and delicate that at a little distance they look more like grass-blades than the leaf of a tree. The long and slender twigs serve the double purpose of affording a firm attachment for the nest and suspending it where no ordinary foe can reach it, while the delicate leaves give their aid in fastening the nest to the twigs, and at the same time serve to conceal the structure from prying eyes. The nest is made of grasses which although green when first woven, become white and dry in a short time. The grass is mingled with hair, which, matted together, make it impervious to

wind and rain.

The *Painted Honey-Eater*, a native of New South Wales is a handsome bird of rich brown color above, with the exception of a yellow patch on the base of the tail, and white slightly spotted below. A characteristic mark of the species is a little patch of pure white just by the ears. This species does not confine itself merely to a diet of sweet juices, but feeds much on small insects. The birds are generally seen in pairs, and are very playful, chasing each other merrily, and spreading their tails so as to show the white color. They sit on a branch, keeping a careful watch, and whenever an insect passes near they dart into the air, catch it, and return to their post. The nest of the Painted Honey-Eater is a beautiful example of the pensiles.—*Harper's Magazine*.

The Kasai is another large river that has just been discovered in Africa. Its length is unknown. Four hundred miles above its juncture with the Congo it is six miles wide. Thousands of hippopotami inhabit its waters.

The lighthouse keepers at Atlantic City in New Jersey, have plenty of material at hand for game dinners. They don't have to use a gun either. They often have a surfeit of flesh pouring into their domicile, portions of which would tempt the appetite of the most fastidious. Their larder always containing either ducks, brant, geese, or other similar birds. As many as three hundred birds have been taken in a single night, caught between the netting and the windows of the lantern. The strong lights attracts them.

We can supply our friends with any book published, at publishers prices. We give a fair discount on large orders. Young Naturalists making libraries should write us for our prices before purchasing elsewhere.

# The Hoosier Naturalist,

Published Monthly at 50 cents, a year.

A. C. JONES, R. B. TROUSLOT,  
EDITORS AND PUBLISHERS.

*Items of interest solicited from young  
Naturalists or Collectors.*

*Terms of Advertising made known on  
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and 89 Delancy Street, New York.

## TO ADVERTISERS.

The circulation of THE HOOSIER NATURALIST will be 5,000 copies each month. We feel assured that you will be benefited, if you will favor us with your "ad" for, three, or twelve months as you see fit. Send for advertising rates.

VALPARAISO, NOVEMBER, 1885.

Once more we make our editorial bow to the Naturalists of America and while it may not be as graceful as some would expect, we hope to improve as we repeat it.

In our Oct. number are several errors which we trust our friends will overlook. They resulted through changing the form of the paper and a lack of time to correct copy, which will not happen again.

We feel that the world is smiling on us about as much as we had expected before venturing into the field we have so recently entered, and we are much encouraged by the many flattering testimonials for "THE HOOSIER NATURALIST" that come to our table each day. Again we are disposed to feel that our efforts are duly appreciated when we receive the subscriptions of so many persons from all sections of the country who are interested in the study of Nature. We have just purchased the Idea Card and Stationery House in this city together with the printing office connected with it, hence we are fully equipped

for publishing our paper: we mean for it to steadily improve in size and interest until it shall receive a hearty welcome wherever it goes.

J. Ross: Agassiz is pronounced Ag-as-se, accent on first syllable.

Young collectors should be careful of the counterfeit arrow heads which are now being manufactured.

A. J. Zimmerman reports finding on two different occasions three Cow-birds eggs in the same nest.

Mr. L. W. Stillwell of Deadwood, D. T. has a beautiful Albindeer which he wishes to sell. Write to him for terms.

Every collector should have some of H. D. Hill's Mazon Creek Fossils. They are "just splendid" See his "ad" on another page.

In A. E. Ashfield's "ad" in last issue, it should have read 39 cents, instead of 3 cents, and the address of C. Moxley is Rosemond, Ill., instead of Rosewood, Ill.

Prof. Heritage has our thanks for several back numbers of the Musical Ideal. As its name indicates it is devoted to music and musical literature. Send to Prof. R. A. Heritage, Valparaiso, Ind., for a sample copy.

THE HOOSIER NATURALIST with THE SOUTHERN GEOLOGIST hereafter will be sixty cents. Remember after Jan. 1, 1886, the subscription prices of THE HOOSIER NATURALIST will be 75 cents. So if you desire to get our paper and get it cheap subscribe now.

Dr. E. Barney of Salt Lake says, "Suppose I should tell you to pick up a grasshopper hold him by one foot, stick a pin through the first joint of his leg, and see how quick he will unbinge, or unhook, or thrust off the next joint, and thus extricate himself and go off without any apparent inconvenience. No nerves to ache, no blood to loose, and by the use of his wings seems to hop about as well as ever. Try still the other leg and you find the same result. A frog, you can cut all to peices and he experiences no pain, the sequel is, he has no nerves."

## A MERMAID.

There are many stories with which we are all very familiar of the mermaids so often seen (?), far out at sea, standing with their bodies above the surface of the water and with their perfect human hands the animals combed their heads of long flowing black hair; they have been reported as being very beautiful from about the middle of the body upward, being the exact figure of a woman.

There are those who really approve all that has been said of this fish-human but the mass of the people are prone to be somewhat credulous on the subject. Some weeks ago while looking through the Shell and Curiosity Store of J. M. Reynolds at 90 State St., Chicago, Mr. Reynolds very quietly remarked that he had in his possession, what he presumed we had never seen, a *real, genuine* mermaid, and he at once proceeded to usher us into her (?) presence.

We were surprised to no little extent when we beheld what we had never expected to see, a mermaid, or at least what seemed in every particular to be one.

The animal is well preserved, having been embalmed by some Japanese, as we were informed: the lower half of the body is very much like that part of a cod-fish, covered with scales which are large and numerous; about the middle of the body the scales disappear and in their place is a covering which resembles the cuticle of the human body.

The flesh has shrunk until one can readily distinguish and count the ribs, twenty-two being counted; the dorsal and cervical vertebrae fourteen or fifteen; the scapulae and clavicles; all these bones correspond exactly to the same ones of the human skeleton so far as we were able to discern.

The head is round, the crown and base being sparsely covered with coarse black hair (not as it is represented in the sea-faring stories) the face somewhat triangular in form greatly resembling that of a

Chinaman.

The arms are much longer in proportion to the size of the head and length of the body than those of man. They measure thirteen inches.

The whole length of the creature is about twenty-six inches.

Now whether it is a mermaid is not for us to say, but we can find no grounds for doubting it, more than were skepticism.

Mr. Reynolds has sailed on all the seas, has made the subject of natural history a special study for more than thirty years, and he says until he saw this one he had never believed in the existence of such an animal, but that he is now forced to think such a species to have existed, at least.

We shall be pleased to hear from others who know something of this real or mythical creature.

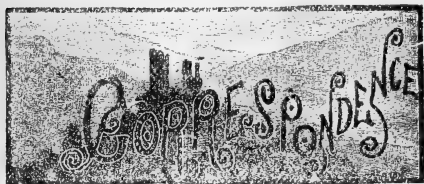
Sir John Lubbock says, in a recent paper, that ants of the same nest however large it may be, have the power of recognizing each other not explained.

The recognition is always immediate even after an absence of a year from the nest. Concerning the longevity of ants, he said he had kept two queen ants for twelve years.

## ANTIQUARIAN SOCIETY.

By PH. HEINSBERGER, NEW YORK.

WORCESTER, MASS., Oct. 21, 1885.—The American Antiquarian Society held its seventy-third annual meeting in Antiquarian Hall, in this city, to-day. George F. Hoar was re-elected president, and George Bancroft, L. L. D., and Stephen Salisbury vice presidents. The other officers were also re-elected. The report of the Council was presented by Rev. Andrew B. Peabody, L. L. D., of Harvard. His topic was "Fallacies of History." The reports of the librarian and treasurer showed active work and prosperity during the half year since the April meeting in Boston.



Our columns are always open for the discussion of Natural History subjects, or items; yet we do not necessarily endorse the opinions of all contributors. Anonymous letters will not be noticed; therefore our correspondents will please give names—not for publication, if they desire to remain incog., but as a guarantee of good faith.

### BIRD NOTES from DURAND, WIS.

The Great-crested Flycatcher has been quite common here this season and its loud wild sounding call could be heard nearly every day from the tall trees in the swamps or on the hills, first seen May 15, took a fine male Aug. 27, with very bright colored plumage, but not entirely through the moult.

Orchard Oriole, one specimen shot May 16, a rare stragler.

May 31. Shot two young Great-horned Owls about full grown but covered with yellowish downy feathers except the wings and tail which had the feathering of the adult. The stomach of one contained part of a squirrel and the other contained fish bones.

Jan. 10. Noticed a pair of Humming Birds drinking sap from holes in bark of tag alders, made by Yellow-bellied Woodpeckers.

Aug. 28. Caught a young, nearly full fledged, Black-billed Cuckoo which must be rather late nesting for that species.

Sept. 14. Noticed the "Reunion of Hawks."

Sept. 20. White throated Sparrow, last seen about Oct. 11.

Oct. 1. Fox-colored Sparrow, last seen Oct. 15. Yellow-rumped Warbler. Black-Snowbird.

Oct. 5. Among a flock of Cedar Waxwings feeding on the black Cherries, on a tree near the house, noticed a large one with white markings on the wings.

I shot it and it proved to be a Northern Waxwing. It was just in the moult, the head being covered with pin feathers. The two species seem to associate together considerably. I have taken the Cedar Birds from flocks of Northern Waxwing.

Golden Plover. Mounted two specimens which were taken Sept. 27, from a flock of about a dozen in a plowed field near here, the first I have known.

E. L. B.

"The Ornithologist" says, "Night Herons have three long white feathers hanging from the back of the head." This is so only with the male and we have frequently shot it in Ill. with four and five and often with the plumes entirely absent. They had probably been pulled out.

### FROM ILLINOIS.

*To the Editors:* Mahomet, Oct., 15, '85

Recently I met a friend at St. Joseph, Ill., who was so kind as to show me a Loon which he had stuffed. It was caught in the vicinity of St. Joseph, and probably was a stray for none were ever seen there before.

Flocks of blackbirds made their appearance for the fall near the source of the Sangamon river, Oct. 14, and 15.

In the October number of "The H. N.," E. K. has an article on the Hoop Snake, asking for other opinions on the subject. I have never found substantial evidence of the Hoop Snake even existing.

By a close examination of the catbird, robin, and a few others, we find the diaphragm is a very thin membrane separating the abdomen from the chest, a fact worth knowing, for those who have never dissected a bird.

W. K.

### A MICHIGAN WOODCOCK.

*To the Editors:* Decatur, Mich.

A few days ago we caught what we term a woodcock. Its body feathers are light brown with black rings extending nearly round the body. Its abdomen was

covered with light yellow feathers with round black spots thickly interspersed. The under wings and tail feathers were beautiful bright yellow. On its throat was a shiny black spot the size and somewhat the shape of a silver half dollar. The occipital feathers are bright red, while at the base of the tail, on the back, is a triangular white patch of snow-white feathers. What do you call it? Dont say it is a woodpecker for I have declared it was not.

A. L. S.

[We would say it was a high-holder, yellow-hammer, or flicker. It is commonly called a golden-winged woodpecker.—Eds.]

### THE BLUEBIRD AND ROBIN IN FLORIDA.

To the Editors:

Beaulere, Fla.

Bluebirds come to Florida to spend the winter and stay late enough to nest. They lay four or five eggs, building their nests in holes in decayed pine trees in the "low lands". I never have found a nest in the "hammocks". Many stay "all summer" but the greater number return to the North in the Spring, where if I am not mistaken, they build again, thus raising two broods each year. [Can some Northern correspondent tell me if I am correct in this?] Judging from the time the Robin arrives here I should think it did not leave the North till all was covered with snow. Here they are gregarious, but whether they come in flocks I do not know. They too live in the "piney woods of Florida", and when you see one robin, look out for more. Once when out driving, I saw a flock of hundreds, covering the low bushes near a marsh, and it seemed as though they would never stop flying out of the grass and bushes. I have never known them to nest here.

F. C. Sawyer.

Subscribe for The Hoosier Naturalist before Jan. as the subscription price after that date will be 75cents.

### THE PEN.

(Appropriated.)

Wouldst thou wield a mighty power, to be famous dost thou yearn?

Wouldst thou "wake the thoughts that breathe," or speak words that inly burn?

Wouldst thou kindle fires celestial in the sleeping hearts of men?

Bravely speak and stir and waken with an "IDEAL" steel pen.

Art thou strange, a wanderer lonely, in far distant lands dost roam?

Art thou longing, sadly, fondly, for thy friends, thy kin and home?

Art thou viewing world-famed cities, snow-capped mountains, vale and glen?

Write of all their glowing beauties with an "IDEAL" steel pen.

Wouldst thou tell of ancient legends, weave the tales of modern days?

Wouldst thou speak in words prosaic, or in grand poetic lays?

Wouldst thou paint word-pictures wondrous, touch hearts of living men?

Grandly paint and move and touch them, wielding the "IDEAL" steel pen.

Art, perchance, a lover dreaming, with a heart true as steel?

Art thou helpless, all thine ardor, thy devotion to reveal?

Art thou silent with emotion? then again and yet again,

Write in softly flowing measures with an "IDEAL" steel pen.

Hast not learned, O scholar, that "the pen is mightier than the sword?"

Hast thou faith that talent rightly used doth meet its just award?

Hast not found this mighty weapon swaying now the hearts of men?

Then strike well with might and power, using the "IDEAL" steel pen.

O, thou wondrous, tiny weapon, made so quick, so keen, so bright!

O, defender of the friendless, and upholder of the right!

O, recording angel of the talents passed from mortal ken,

All thy power, use and beauty meet in the "IDEAL" steel pen.

These pens can be procured of

JONES & TROUSLOT, VALPARAISO, IND.

N. B. Dealers, Schools, and Teachers supplied at a very liberal discount.

## SOUTH AFRICA.

Cape Town, Africa, Sept., 29, '85.

*For the Hoosier Naturalist.*

Your letter of Aug. 2, just received but as yet the papers have not arrived here. Since the greater part of your letter to me pertained to Natural History I shall attempt to give you a few lines that I hope may interest you.

This is certainly a fine field for the Naturalist and I regret exceedingly that I am not up in that interesting branch of science, though I am never happier than when roaming in the shades of forests and surrounded by unsophisticated nature.

I spent a month in the far interior some months ago on a hunting excursion. We were three in number and made our headquarters in the Jungles along the Camtose river, game abounded, and I was happy. But hunting is hard work in South Africa, the weather is always hot, and the forests are thick with undergrowth and difficult to penetrate. One night spent in an African forest, such as we were in, I believe, would impress any man to his dying hour; at times the stillness is so perfect that it becomes oppressive; then suddenly a rush through the brush would be heard, and a frightened deer or antelope would be seen fleeing for dear life from his mortal enemy, the lion or tiger, then a pandemonium of sounds and noises would be joined by the hoarse roar of the lion; the devil-laugh of the hyena would be taken up by the screams of the jackal and yelp of wolf and wild-dog, and myriads of monkeys and baboons would join in the chorus to the confusion of sounds. Then at the break of dawn the feathered denizens were astir, and the air was filled with the melody of their native songs. At midday the heat becomes so great that all animated nature becomes hushed and silent, and that hour we generally took refuge under the friendly shade of our tent and sought comfort in sleep. I shall endeavor to comply with your request to send you some specimens.

They would be easily procured, but sending them home would be more difficult. There is little direct communication between here and the United States; the mail all goes via England. I will do my best, however and get you what I can, and watch my opportunity to send them, and if none offers before I come home, which I hope will be some time next year, I will bring them myself.

J. W. Siler, U. S. Consul to Cape Colony.

[The above is an extract from a private letter to the senior editor who is so fortunate as to be a nephew to Mr. Siler.

Mr. S. has spent the last fourteen years in foreign lands and promises to give us some interesting papers in the near future. He inclosed us some leaves from the silver tree which is indigenous to South Africa. These leaves are perfect gems of beauty and the most beautiful foliage of all the vegetable kingdom.]

## AN ODD FISH.

While Peter Heckner and E. A. Heinemann were fishing in Manatawany creek, they observed a queer sort of fish spring through the air for a considerable distance. When it landed in the water again young Heckner quickly struck it with his fishing rod, which stunned it and a most wonderful creature it appears to be, being a veritable flying fish, having legs as well as wings. It is about 10½ inches long, quite stout toward the head very much resembling a catfish in general appearance, but, instead of a smooth, slimy skin, has scales, small but harsh. The wings, which grow out from beneath the gills are three or four inches long, and appear and feel much like bony feathers. But the strangest thing about it is its legs and feet—one on either side, beneath the end of and just in front of the wings. They project downward about two inches, and each has three long toes. They are very thin, closely resembling the feet and legs of little chicks; they are not web feet.—*Pottsville Chronicle*.



# THE HOOSIER NATURALIST.

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## The Zoologist's Wooing.

When first I saw you, Eland deer,  
My Hart it did repine;  
Because I Gnu how good you were,  
And wished that you Ermine.

When I your Tapir fingers dressed,,  
Upon that eve in May'  
The glance you gave me Seal-ed my fate  
And I'm still yours to-day.

I'll never break Ape art the Lynx  
That bind my Hart to thine,  
Till I shall Lio : my last couch  
And in my grave recline.

Erze, Eland deer, upon me now!  
(That's Crivet pleases you),  
One glance you gave your bright eyes will light  
This Mole-drin'g fire a-gnu.

And if it is for Porcupiae,  
Though it should ruin me,  
I'll bring as many Hamster you  
As one could wish to see.

But then, of course, weak Antelope,  
For that would be a Boar,  
But we can stay right here Rat home,  
And I'll never leave you Mohr.

## A Hint to Conchologists.

The following easy way of removing the smaller species of univalve mollusks from their shells without injuring the latter, may prove of interest to our conchological friends:

As the old saying goes, "first get the shells," then drop them into a pan of water close to the boiling point, and let them boil from one to two minutes, but no longer. Then, by inserting the point of a pin into the foot and turning the latter toward the inner lip or columella,—revolving the shell at the same time in an opposite direction,—the animal may be extracted without the slightest trouble. As soon as possible thereafter the shells should be

carefully brushed, using a soft tooth-brush for the purpose, and those having an outward gloss well rubbed with a fine cloth or chamois skin, while those that are naturally dull, or covered with an epidermis, should be oiled lightly with the *purest* of olive oil only. Cotton-seed oil will make them offensive to the touch as well as to the sight. Unfortunately this boiling process will not answer for large specimens, as the amount of time required to sever their muscular attachments inevitably destroy the internal nacre, and therefore the value of the shells. It is pleasant to know however, that the small and more delicate species can be so easily managed, saving as the operation does, much time to the student, and many a trial of his patience and temper as well. JOHN FORD—*Random Notes*.

## The Whip-poor-will.

Whip-poor-wills have very long bristles on the base of the bill, which not only occur there but also extend along the side of the wide mouth nearly to the gape. As these project out on either side they serve to guide insects into the capacious mouth which is so large that could its possessor be induced to enter our kitchens it would make an excellent fly-trap.

There can be but little doubt, however, that the Whip-poor-wills are exceedingly useful birds in the woods and along their margins where they live throughout the summer, as they destroy millions of injurious insects.

The Whip-poor-wills breed in the woods laying upon the ground and depositing their two beautiful eggs in a simple hollow scratched among the leaves. The eggs are perfectly elliptical in form, only delicate creamy-white in color, spotted and blotched regularly with lilac, pale lilac and pale brown: they measure 1.22x.78, and are laid about the last week in May. J. C. MAYNARD—*Florida Naturalist*.

### Birds of Our Own Land.

The little bird sits at his door in the sun,  
 Attil' like a blossom among the leaves,  
 And lets his illumined being o'er run  
 With the deluge of summer it receives.

Every part of our land, whether in the gloomy, quiet nooks of some stately pine forest, where man never intrudes, or in our teeming crowded cities where weary thousands toil and spin, with little to break the monotony of their lives, or whether in the bleak and desolate regions of ice and snow, or in some luxuriant tropical garden, is enlivened by the presence of one or more varieties of these little messengers of love and praise.

Its glad song may be heard from ocean to ocean, from the Gulf to the British provinces, teaching its lessons of gratitude and trust to all those that claim this vast land of ours as home.

All have had opportunities for studying the habits and characteristics of birds in captivity, but like many of nature's most beautiful productions, they lose somewhat their original charm when separated from their natural haunts; and we feel with the philosopher of Concord, whose caged bird sang the same song as when free, but left its sweetness on the alder bough, and whose shells "had left their beauty on the shore."

Let us follow a few of these into their quiet haunts, and study them as they are, with their natural surroundings; with the beautiful background of river, and forest, with the leafy branches above, through which the dancing sunbeams flit. The more fertile valleys of the great West ring with the loud clear song of the Western lark and the passionate trills of the lark-sparrow; the dreary sage-brush wastes are rendered less desolate by the tender, soothing chants of the sparrows; in the river valleys are heard the merry chatter of the wood-wren; while on the mountains the pine forests and rocky can-

ons resound with the carols of the tanager and the silver harmony of the thrush.

A traveller among the Rocky Mountains tells of his first experience with the thrush family, which so vividly portrays its characteristic trait that I shall relate his experience. "Our camp was by the roadside; the dense forest surrounded on all sides obstructing a distant view in any direction, and on this account would have been gloomy" had it not been for the abundance of the birds sporting or singing all around us, an unusual circumstance in a forest so dense. The dusky mountain jays squeaked and chattered and the nut-crackers piped an accompaniment. The rare white-headed wood-peckers twittered shrilly as they sported about the tops of the dead trees, two-hundred feet or more aloft. But these sounds were harsh compared with the sweet warblings of a mysterious bird which lived among the tangled and almost impenetrable undergrowth in the ravine away down below us. To these carols we listened all day, for they never ceased from daylight until dark, until at length a curiosity to know the author of these sweet notes impelled us in their direction. Our efforts, however, seemed of no avail; there seemed to be not a solitary bird in this gloomy ravine, where scarcely a direct ray of sunlight penetrated; but when we stopped and listened, the mysterious song was again heard, now behind, now before us, now up the hillside, as if the voice of a capricious spirit. It was no spirit bird, however, for we presently caught a brief glimpse of a little brown bird. As he disappeared he uttered a sharp twitter, a warning of danger, for his companions became immediately silent. The lull was brief, however, and then we discovered that what we had supposed to be one bird shifting from place to place, was in reality, a number of birds answering one another in a most systematic manner. No sooner had one performer finished than the song was taken up by another, and from far and near

this side and that, until their silvery carols echoed and re-echoed through the shaded jungle, each seeming to vie with the others in their efforts to disperse the gloom of their forest home."

One of our most familiar birds, and one which should rank in our affections with the robin and blue bird, is the cat-bird. But unfortunately, general prejudice is directed against him, not merely on account of his undeniable propensities to steal cherries, but also because many persons dislike the cat-like notes which he utters on certain occasions.

The curious water-ousel or dipper is found in mountainous regions where it dwells among the rushing streams, which flow from the perpetual snows, down the ravines and canons, through dense forests of pines and firs. It delights to walk in the shallow bed of the stream, or to stand upon a protruding stone, or follow the course of a brook, chattering as it goes; when walking or standing it tilts its body continually up and down.

Owing to the vast expanse of prairie land lying between the Mississippi River and the Rocky Mountains, quite a large number of birds are found in our own district which are found nowhere else. Nearly all the birds of this region have the habit of the sky-lark in singing on the wing. An example of this family is the Missouri sky-lark, which sings a beautiful carol while it floats in the air at a very great height.

The white-headed sparrow, is known in the White mountains as the Peabody bird. Its song consists of twelve distinct notes, which may be very closely imitated by whistling in a shrill tone the words pe-pe-pebody-pebody-pebody.

The mourning sparrow of the Missouri river valley is named from the mourning cadences it utters.

Numerous in the Eastern States are all varieties of the wren family. Its song is a merry, lively ditty, heard in gardens and hedges, where it flits from bush to bush in search of insects and seeds. The

house wren is the most familiarly known; it builds near houses in boxes prepared for it, and sometimes takes up its abode in rather unexpected places, as unused carriages, or the sleeve of a coat forgotten in the barn.

Early to arrive, one of the first sweet harbingers of approaching Spring, loath to leave us, until rudely driven hence by the cold North wind's icy breath, is our little friend Robin.

Not only in the bright sunshine may its song be heard, but when storm clouds hang over above, and our dull rainy weather sets in, its cheerful notes may still be heard, its faithful efforts to dispel the gloom. It builds its nests in noisy locations; a robin has been known to build on the timbers of a railroad bridge, over a wide expanse of water, over which trains passed continually.

Before leaving our little friends let us take a glimpse at one who is our constant companion, who, notwithstanding his plain and homely garb, has by his sweet song, and gentle, confiding manners, won our affection. Who has not seen them flock to our doorstep or window for the welcome crumbs thrown to them. The common song-sparrow, more numerous and widely distributed than all your birds if we except the omnipresent familiar little "chippy." When well treated they will return year after year to the same locality whenever thus encouraged.

The unfortunate introduction of the house-sparrow from Europe has done much to lessen their number and drive them from our city homes.

They are sadly persecuted by the aggressive intruders, and the rapid increase in the enemy's forces, but "not even a sparrow falls to the ground unheeded" by the vigilance of the great Author of all these manifold and marvellous productions of nature, and in His guardian care we will leave them.

E. M. F.—

*School and Home.*

### The Woodpecker.

Tap! tap! goes the woodpecker's busy bill,  
Tap! tap! on the old oak tree.  
He hunts small game  
With his tongue of flame,  
For a woodman bold is he.

"'Tis the early bird gets the worm," he cries,  
As he flies from his nest at morn,  
And his note so shrill  
Doth the woodland fill  
Like the huntsman's bugle-horn.

In their chambers dark,  
'Neath the moldering bark  
The ant and the worm lie still,  
But he hurries them out  
With a terrible rout,  
And gobbles them up at will.

—LAURA J. HAGNER

Most persons who are at all familiar with the sights and sounds of country life are well acquainted with the busy little carpenter who plies his hammer so unceasingly upon the barked boughs of old trees, and whose strokes resound through the forest with such "rhythm of labor" that we are inclined to feel a human interest in a bird who, instead of flitting from bough to bough with easy indifference to sublunary wants, not only without care for the morrow, but without business for to-day, like so many of his race, plies the tool with unremitting industry, with no other object than that of earning a living for himself or his family.

The woodpeckers are, indeed, an eminently practical people, with "no nonsense about them." They do not sit idle, pouring out gushing songs at early morn or dewy eve; they are then generally engaged in getting breakfast, or foraging for supper, and the noise they make about it is doubtless intended to extend the benefits of their righteous example to their incorrigible neighbors, who indulge in merry-making at unseasonable hours.

These industrious folk belong to a very extensive family, that of the Picidae, and the family to the order Scansores, or climbing birds. The feature in their organization which assigns them to this order is the possession of four toes, two before,

and two behind, the outer anterior one being usually directed backwards, the hind toe being on the same level with those in front. The tail feathers are from eight to twelve. You may suppose that the arrangement of the toes is not a matter of much importance, but, like many of the peculiar claims of pedigree, I can assure you that it is essential to the standing of the family, and fixes their right to belong to the Scansores at all. If you ask the first woodpecker you meet, he will tell you that he can prove by the authority of Prof. Baird, of the Smithsonian Institute, that he belongs to the Scansores, because the arrangement of his toes is *zygodactyle*, and if he be a woodpecker of respectability, that his tail-feathers number just twelve, though there are members of his race that wear ten, but this is a fact you must delicately ignore.

The family of the Picidae possess very marked features, and embraces many hundred species. The birds are distinguished by a bill, straight, rigid, and chisel shaped at the tip, the sides being more or less rigid; wings long, the primaries or feathers on the first joint of the wing being ten in number; the middle tail-feathers are rigid and cuneate, and used as a support to the body in climbing and standing; the claws are high, strong, much curved, and very sharp. The tongue is a most curious and ingeniously-formed instrument, singularly adapted to the use for which it is intended. It is capable of great elongation, and is armed at the tip with an arrow-like point, having reflex spines. When the powerful bill has penetrated the outer bark, and reached the retreat of an unfortunate insect, the tongue is darted forth, and, the prey secured, is instantly retracted within the mandibles. The tip of the tongue is furnished with a thick, viscous fluid, to which the smaller insects or larvae instantly adhere; the larger are caught and drawn forth by the retroverted spines as by a set of hooks, not transfixed, as has been often supposed. The tongue has the horns of the hyoid bone greatly elongated poster-

iorly, extending around the back and over the top of the head, the anterior ends enveloped in a sheath in which they move freely, being attached in advance of the eyes, usually near the opening of the right nostril. The glutinous fluid is secreted by two large glands, whose ducts open near the point of the lower jaw, and furnish a fresh supply every time the tongue is extended. By the force of the muscles attached to these slender bones the tongue is often thrust out a considerable distance beyond the tip of the bill, and by the use of another set of muscles is retracted considerably within it.

The busy "tap! tap!" of his bill upon the bark of some decayed tree has a clear, sharp sound, like the stroke of a small hammer, and the woodpecker of Cayenne is appropriately called by the natives "the young carpenter." Indeed, all the tastes and habits of these birds are generally sober and practical.

The nest is what might be expected from the matter-of-fact character of the bird. There is no fairy-like structure of

Feathers and moss and a wisp of hay, no dainty lining of successive layers of wool and hair, feathers and down, but a simple recess dug out of the heart of a tree.

For this purpose they sometimes avail themselves of a hole which they find in the tree, but more often dig one with care and patience, varying it in size and depth sometimes only a few inches, and sometimes a foot or eighteen inches. The situation of the nest is chosen with care, just beneath the shelter of some large projecting bough, which may give protection both from observation and the weather. The chips are thrown out or carried away by the birds, except a few purposely left at the bottom of the excavation. These form the not too luxurious couch of the young birds, but the home is commodious, warm, and safe, and forms a suitable cradle for this hardy and industrious race.

The eggs are from four to eight, purely white, without spot or stain. Both parents share in the labors of love required

in caring for their young, and are indefatigable in painstaking. Before they leave the nest they manage to take a survey of the outdoor world from the door of their cave, and when they come forth, run about upon the tree before attempting to fly; indeed, to the woodpecker, his tree is his country. There he first sees the light, there he finds his sustenance, there he delights to labor, and there he enjoys the rest from his labor, often remaining in the same tree from year to year, and, after the young birds have flown, using the empty nest as a bed-chamber, to which he retires to sleep at night. If he leaves, it is only for a short time, and generally from necessity rather than choice; their flights are not long and only from one tree to another. Upon the tree the bird's motions are quick and business-like; he runs around the trunk or branch quickly, and his taps are sometimes very rapidly repeated, first upon this side, then upon that. After tapping once or twice he will lay his head against the tree to listen if he can discover signs of life beneath. If shot or in any way wounded, he still clings to his tree, and, instead of flying, tries to elude his pursuer by going around the tree, and even after death the claws will still retain their hold, and the body remain pressed close to the limb.

Naturalists disagree as to the temperament of the race. Some affirm that they are of a gay, frolicsome mood, and that, though they do not sing, they utter notes of pleasure and delight. Others seem to consider them rather morose, and not at all disposed to gayety. Wilson declares that they excite his compassion, on account of the hard terms upon which they gain their livelihood. But as a rule they are generally regarded with friendly feeling, even by those who sometimes suffer by their depredations, as the farmer and fruit-grower soon learn that they can well afford to give them the fruit and corn they eat, in consideration of the quantity of noxious insects they destroy. For, though fond of fruit as a relish, they depend for substantial diet upon insects, or the grubs

and larvæ. All woodpeckers resemble each other in a general way, and are much alike in their habits.

The extremes of the family are found in the Ivory-billed woodpecker, and common flicker, which belongs to the same family, but is found at the bottom of the scale of rank, and the difference between this plebeian individual and the distinguished representative of the dignity of the family, called the "ivory-billed" is so great that the most unscientific eyes can discover it without glasses, as a Chinese will distinguish a boat hand of the wharf from the gold-buttoned mandarin.

The colors worn by those birds are gay-er than we should infer from their sober and practical character; for, though the general garb is black and white in vivid contrast, they do not disdain to wear touches of the brightest hues, eschewing only blue, which they never put on under any circumstances. From the names of different varieties, we may infer the gayety of these dashes of color, which relieve the sobriety of their usual costume, such as "golden-winged," "red-cockaded," "red-headed," and "yellow-crested." Indeed, so often is the red cap adopted, that the family has even been suspected and accused of being communists; as if such hard-working folk were likely to be tainted with such opinions. C. S. N.

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An artesian well drill at Cedar Key brought to light some curious substances. At the depth of fifty feet a solid live oak log was found embedded in the rock, at seventy-five feet a palmetto log was found and below that another live oak log, all in the solid bed of lime rock. The wood is black but otherwise shows no sign of age or decay.

## Practical Hints on Collecting

### —Coleoptera.—

How do you capture beetles? is a question so often addressed to a collector, that I do not think it out of place to discuss it at length here. The beginner who is not so fortunate as to be in position to profit by the experience of an older collector, will surely find some points of interest, and the latter will, I hope, be induced by it, to communicate his individual observations on the habits and hiding-places of coleoptera.

The proper choice of a locality for collecting is a point of first importance. It is true that insects are found everywhere but like all the rest of the animal world their existence is more or less dependent on water.

Scarcity of water in a region is synonymous with insect life, and the collector can save much time and be spared much discouraging experience by a knowledge of this fact.

Beetles are to be found at all seasons of the year. Many species hibernate in mature form, hidden under loose bark, or under moss at the foot of trees, under the dried leaves which cover the ground, or in the earth, under stones, etc. An excellent mode of capturing beetles of small size is the sifting of mouldering leaves, which is equally remunerative at all times. The leaves should be taken from hollows in the ground, where they form thick layers, and especially from places near the borders of woods.

The sieve I use consists of a wire ring of about one foot in diameter, to which a bag of coarse muslin of about the same length is sewed, the bottom of which is formed of a piece of brass wire-cloth of about 10 inches diameter, and with about 5 mm. square spaces. The sifting could be done over a sheet of white muslin or paper, or better, by placing the sieve into a bag of 1½ feet length fastened to a ring equal to that of the sieve. The sifted

matter will fall into the outer bag, and can be examined whenever convenient. In this manner I have captured many interesting species: *Staphilinidae*, *Trichopterygidae*, *Pselaphidae*, *Lathridiidae*, *Nitidulidae*, which by no other means would have come under observation. The best time for this kind of collecting is in winter, when no snow is on the ground, and late in fall, but may also be employed at any time of the year with good results. On warm, pleasant days towards the close of winter (end of February and March), searching under stones will prove very successful, as the insects which have passed the winter in torpid state in the earth under stones, will now come to the surface. Good places are the sides of hills sloping towards the East, which are bordered by swamps, being especially rich in insect life at this season, and nearly every stone which is upturned discloses a little colony of them. But later in spring these places are entirely deserted.

Some writers recommend for the capture of species living with ants, to sift the material composing the nests of ants in winter while the ants are in a torpid state and cannot molest the collector in this operation.

Placing of small stones in the vicinity of these nests in spring as traps for the coleoptera parasites of ants, is also recommended.

Occasional careful inspection of the under side of these stones is said to give often very satisfactory results, less in the number, than in the value of these minute species found. I have not practically tested this method and I would therefore be greatly pleased, if collectors who are in the position to employ both methods would communicate with me on their experience.

With the increasing warmth of spring ponds and brooks offer good collecting fields. A net is required made of some strong and at the time porous cloth; the one I use is made of ordinary muslin, with a bottom of the finest brass wire cloth, the meshes of which do not exceed  $\frac{1}{2}$  mm.

The water will readily pass through this net, but even the most minute insect will be retained. Mr. Isenschmidt recommends in the "Entomologische Nachrichten of Puttbus," a net constructed entirely of woven wire. But besides the difficulty and expense of obtaining such a net, transportation must be very inconvenient, and I believe therefore that the first named net will have the preference with most collectors. During a collecting trip without a net the inhabitants of rain pools and puddles etc. can be captured by disturbing the water with a stick and thus bringing up the impurities from the bottom. Soon thereafter insects will be seen floating on the surface and can be easily captured with the hand.

The decaying vegetable substances, leaves, etc., on the bottom of ponds, as well as the weeds and plants growing therein should be taken out with the net and carefully examined, and will yield many small species. I have never found *Elmidae* between such substances, although I have heard that other collectors have done so.

*Elmidae* and *Parvidae* can be taken on wood immersed in running water, in which some obstruction causes a strong current.

Wood appears to be generally preferred by them and can be laid as traps on the bed of a brook in suitable places. I have repeatedly taken as many as fifty and more specimen on a short piece of board.

With the advancing summer the most useful tool for the collector will be the beating net. With it the blooming meadows, the shrubbery on the sides of country roads and foot paths, the low trees on the borders of woods and on the banks of brooks and ditches, bushes and the likes are swept by dextrous strokes. After 15 or 20 strokes the contents of the net should be examined and if the locality has been well selected, it will contain a great variety of insects of all orders, and generally a collector gets more desirable species than he is able to collect in any other way. (To be continued.)

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IN a few days we shall issue the first number of "The Hoosier Naturalist" for 1886. While the general scope and character of our journal will remain the same we are happy to say, we have made arrangements whereby it will be greatly improved. It will lose none of its past thoroughness and scientific accuracy, but we propose to introduce several new features, in the manner of presenting our articles on birds, animals, insects, etc., which we trust will render the journal none the less interesting to our older readers and more pleasing to the younger ones.

We will also give more attention during the coming year to Taxidermy which is now an acknowledged art.

We will be very thankful if our taxidermal friends will favor us with anything that they may deem worthy of mention.

The difficulties experienced in carrying on a journal similar to The Hoosier Nat-

uralist are not generally understood. Articles suitable for its pages cannot always be obtained for the asking nor written in a moment. Nor must our friends be indignant if their proffered manuscript is delayed in appearing. Many times when the subject-matter is excellent the grammar is so bad that the article has to be entirely rewritten.

Editors are privileged characters, you know, and sometimes cut and slash recklessly. So please remember that as we are still working with "malice toward none and charity for all" our friends will do us a favor by sending in such articles or notes as they have, even though we may abridge them somewhat.

We are trying to give you your money's worth, and we believe we have done so judging from the many flattering letters received, but we wish to improve each month. To do this we must have your assistance, you can and must help us, by increasing our circulation. Our premiums are liberal. You may not have time to canvass for a large club, yet you surely have some friend who you could easily induce to subscribe for THE HOOSIER NATURALIST. Remember each name you add to our subscription list will enable us to improve the journal and make it more useful and interesting, thus you will be working for *your* interest as well as *ours*.

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## CLIPPINGS.

## Wise and Unwise.

An ape is ridiculous by nature, but men become so by art and study.

"Camels sometimes live to the age of 100 years." It makes 'em hump to do it though.

The shark is the most sociable of fish. He never calls upon a bather without wanting to stop and take a bite.

The seed vessels of the bird-catching tree of New Zealand secrete a very sticky gum, in which not merely insects, but birds are entangled and perish.

Oyster planters in Peconic Bay, New York, have scattered 78,000 bushels of shells over the bottom to catch the spawn and in all over 175,000 bushels of shells will be put down.

The sparrow has not only lost caste abroad but he is loosing it at home. The country papers of England are filled with a discussion by farmers as to the best methods for his extermination.

On the island of Marago, at the mouth of the Amazon, there is a four-footed bird. In its growth one pair of legs change into wings by a process similar to that of the tadpole into the frog.

According to a popular error in old times the porcupine could dart his quills.

They are easily detached, very sharp and slightly barbed, and may easily stick to a person's legs when he is not aware that he is near enough to touch them.

Angle-worms, fish, etc., are often caught up into the clouds by revolving storms, and then dropped again many miles from the place where they were taken up. Small fish have often been found in puddles of water in village streets, to the astonishment of people unacquainted with the phenomenon.

Jokes on the sealskin sacque are said to be fur-fetched.

London dealers in birds received, when the fashion was at its height, a single consignment of 32,000 humming birds, and another at one time received 30,000 aquatic birds and 300,000 wings.

A queen bee lays from 2,000 to 3,000 eggs in ninety-four hours. It is not necessary to ask "How doth the little busy bee?" She doeth well, and should be a shining example to the lazy hen that can only be induced to lay one egg in twenty-four hours, and then only when eggs are cheap.

A lady in Brunswick, Ga., found a nest of half-grown mocking birds in her yard recently. She succeeded in capturing them. They were put in a temporary cage and the cage put in a room. During the day the mother bird flew into the room and was readily caught and placed in the cage with the brood. She began instantly to feed them with the food which was in the cage, and did not seem to notice the imprisonment. On the day following the male bird flew into the room, and offered no resistance nor showed any signs of fight when the lady captured him. He was placed in the same cage, and the lady has the entire family. They seem contented and happy.

## PRESERVING FUNGI.

Mr. J. H. Martin, in Hardwick's *Science-Gossip*, says that a good method is to place them in a solution of one part calcium chloride (chloride of lime) and ten parts water. This will change the phosphates of the fungus into phosphate of lime, after which they will be found to keep well.

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### The Blue Racer.

#### *Basconian Constrictor.*

There has been a great deal said of the many (?) poisonous snakes in the Mississippi Valley, but it has been discovered that, out of the many varieties found in this section, there are barely four that are poisonous, viz., the viper or spreading adder, the rattlesnake, the moccasin, and the copperhead; however, the great mass of people are reluctant to form any intimate acquaintance with any creature belonging to the order *Ophidia*, most of which are as "innocent as lambs."

There is certainly much superstition about these unfortunate reptiles for they are feared and hated by most everyone, although nine-tenths of them are more than harmless, they are useful as destroyers of annoying insects, mice, and rats.

Among this class is the common blue racer of this region, most abundant along old rail fences, straw and hay stacks, and dilapidated buildings; they are also found in the woods and along small streams.

This snake cannot possibly be confounded with any other as its color is an index to its name.

Some week ago we were visiting in Jasper county, Ind. and were informed by our host that about two miles from his house was a "snake den" into which many hundred snakes found their way every fall to spend their winter months in hibernation.

We proposed to visit this venomous locality immediately; it being a bright Sunday morning. In a short hour we had driven to the place of interest and were not at a loss to find snakes, as the boys of the neighborhood had visited the place the previous Sunday, with clubs and other suitable weapons, killing according to actual count, more than six hundred snakes and piling them in great heaps by the roadside or decorating the small oak trees with their long shining bodies. More than nine tenths of them were blue racers of all lengths from fifteen inches to six feet.

We procured the proper arms for the occasion and set to work to find live snakes and within three quarters of an hour we had secured about fifty fine specimens, three of which are now in the HOOSIER NATURALIST's collection.

We found that the surface of the ground for some rods around was perforated with openings about an inch and a half in diameter into which the snakes enter and wend their way through the subterranean channels to the "den", far below the surface.

We were told that in the spring, even before the frost has entirely left the ground, one can find snakes in the woods near this place, which doubtless believe that the early worm catches the bird and being prompted by hunger, from so long a fast, are seeking food. Our informant said further that every fall after a few frosts the boys devoted a Sunday to ridding the country of these pests (?).

You may call this a "snake story" as we were inclined to do, when told of it, but upon witnessing what we did, we were compelled to know it, to be true.

It is undoubtedly wrong for these innocent reptiles to be massacred as they have been, for they are as harmless as toads and far more usefull than many other creatures that go unharmed.

### A Hunt for Hummingbirds.

The Ruby-throated Hummingbird is quite abundant during the summer months through this section of Illinois. At certain seasons great numbers are attracted to the swamps where grow many blooming plants. Knowing this, by appointment, I met a friend from Plano, at Little Rock creek bridge, early one morning in August.

All vegetation was heavy with dew, in consequence of this, we had scarcely entered the swamp before our clothes were as wet as the surrounding thickets. The incessant squeak of the little hummers

was, at time, so extremely shrill as to be quite disagreeable. They flew around and over us often alighting only a few feet away and appeared so very confiding that it seemed a great shame to shoot them. Their closeness to us was their only protection, for had we fired at them, very probably there would not have been enough humming bird left to examine with a powerful microscope. Finally we found a small open space of about an acre in extent, and placing ourselves in the center, commenced our work. In order ever to find the little fellows we had to let them light on some branch that we could use as a land mark.

Our shells were loaded very light with assorted dust shot and as we were generally several rods from our small targets, those shot, made excellent specimens.

We were here two hours and succeeded in securing between us, seven males and four females. The uncertainty of finding them made us cautious with our shots. We could have killed hundreds during those two hours had there been the slightest chance of securing them after shot; as it was, there were three we did not find.

Never were hummingbirds so numerous before or since. We carried our small game home with us and were successful in making good specimens of all of them.

-B. Sandwich. Ills.

## EXCHANGE.

*We reserve to ourselves the right of deciding whether an Exchange shall appear or not. We do not guarantee the responsibility of correspondents or the accuracy of the descriptions of articles offered for exchange. To avoid any misunderstanding or disappointment, write for particulars to the addresses given, before sending the articles called for.*

Insects, Minerals, Bird's Skins, and Natural History specimens, for insects and works on Entomology. Noble M. Eberhart, Chicago Lawn, Ills.

## REVIEWS.

We greet with pleasure *The Western Penman* which comes each month sparkling with beauty and originality. It surely must be indispensable to the energetic penman. Chicago, 60cts., a year.

*The School Visitor* from Madison, Wis. is a new exchange, though quite an old paper. It represents the interests of the North Western Business College. Semi-monthly. 50 cts., per annum.

*The United States Monthly* is a large 20-page paper devoted to the "Temperance, Good Health, Right Living, Intelligence and Industry of our people." It is with pleasure that we are permitted to record it among our exchanges. Fitchburg, Mass. 50cts. per annum.

*The Sedalia Natural History Society* of Sedalia, Mo., have our thanks for their first bulletin, which, besides the Constitution and By-Laws, contains a long and interesting description of the shells of Pettis Co., Mo., by T. A. Sampson. A. M. This Society, though organized scarcely two years ago, has been quite successful in its endeavors.

It has a large library with many duplicate volumes for exchange. Judging from the source of its numerous contributions, its cabinets are being rapidly filled with valuable specimens.

*The Hoosier Mineralogist and Archaeologist*, an interesting, 25ct. Monthly, edited and published by Mr. Harry F. Thompson, at Indianapolis, Ind.

*The Semi-Tropical*, Eustis, Fla., weekly, 8-pp., published by Geo. F. Miner, at \$1. 50 per year. It comes from where "Tis joyous spring through all the year."

*The Naturalist's Leisure Hours and Monthly Bulletin*, 75cts., a year, devoted to "Science and Practice," edited by Prof. A. E. Foote, of 1223 Belmont Avenue, Philadelphia, Pa.

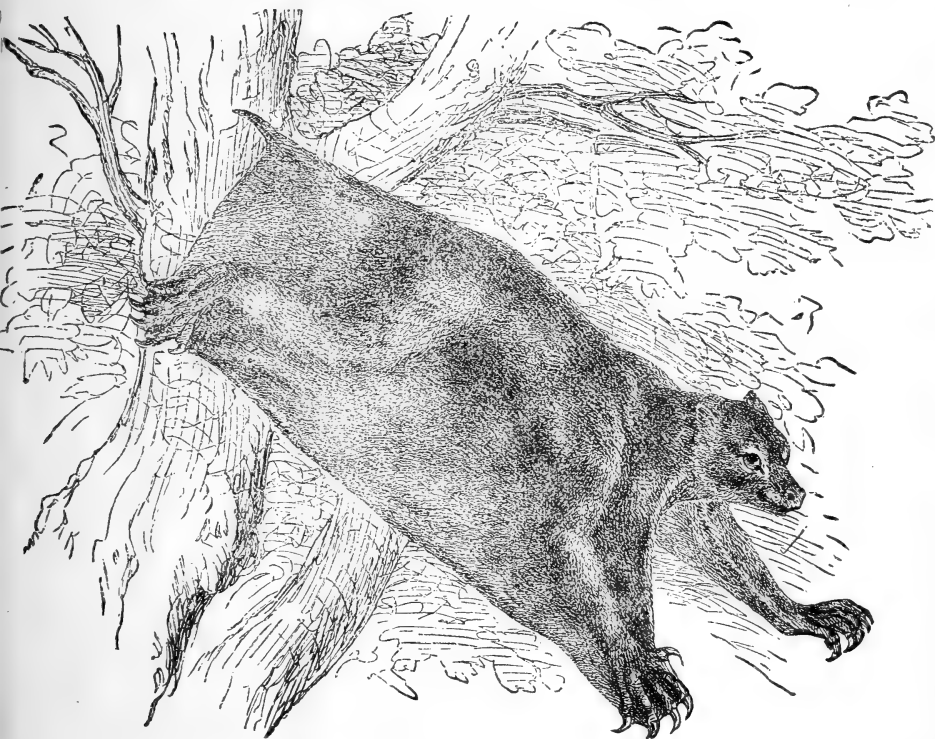
*The Michigan Philatelist* hailing from Manchester, Mich., is a neat 8-page journal, published by H. G. Spaulding.

# THE HOOSIER NATURALIST.

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## The Coluga.

*Fletcher M. Noe.*

Glancing at the long series of things, we frequently find species, which, besides having all the characteristics of their own order, are possessed with other peculiarities observed only in widely different divisions of the animal kingdom. For instance, the sea horse combines some of the attributes of the horse, fish, and monkey. The internal, and to some extent

the external structure resembles that of the fish; the prehensile tail resembles that of a monkey; its young are developed in a pouch, as with marsupials, and the head is decidedly equine in appearance.

The Coluga was first discovered by Bontius, who described them under the name "*Vespestelouis misables*," or wonderful bats. Attention was afterwards called to these strange creatures by Camellius and Petwin, the former naturalist in-

venting the name *Galeopithecii*, which means cat-monkey—a name which it still retains. Our friend is an inhabitant of the far-away lands of Malacca, Sumatra, and Borneo. Like the flying squirrel it is nocturnal in its habits, remaining during the day suspended from a limb by its hind feet, like a bat, with its head folded on its breast. The animal is as large as a cat, and at a hurried glance resembles the flying squirrel. On more careful examination, however, we observe that the aliform or flying membrane is far more developed in the former than in the latter. In the flying squirrel it merely unites the limbs on either side of the body; in the coluga it includes also the tail, embraces the separate digits of the hands and feet, and extends from the thumb to the chin. The tail is about fifteen inches long, is round, and is not covered with the long fine hair seen in the flying squirrel. The animal is covered with soft, wooly hair, which undergoes great variation in colors in different individuals. The young coluga is dull brown, gray and fulvus, marked with white spots and lines. Adult specimens are clad in a more uniform livery of brownish tints above, replaced by a dirty white below. The head reminds one of the large fruit-eating bats. The muzzle is somewhat inflated, the nostrils large, far apart and crescent-shaped, the ears rounded, and feelers very short. The four limbs are of nearly the same length, the hands and feet slender, each with five digits, which are long, laterally compressed and terminating in large, powerful and externally flattened claws. The female has a pair of mammae on either breast. Their teeth, unlike most mammals, are remarkable in being split into nine or ten tiers, giving them the appearance of combs. The stomach is very much elongated and the lungs are devoid of lobes. It awakens in the evening as soon as the sun gets below the trees, and sallies forth in search of food, which consists of insects, fruit leavery and small birds. From time to time during the night it utters a mournful cry resembling

that of a child in agony more than any thing else. It brings forth but a single young at a time. This is blind and naked and clings to its mother's breast in a most helpless condition. The coluga is hunted by the natives for its soft fur, which is hardly less fine and dense than the chincile, and for its flesh, which, owing to its rank odor, is disgusting to civilized man.

On account of its nocturnal habits, but little is known of its life or ways, but enough is known to show that it greatly resembles, in size and habits, that of our common flying squirrel, to which it is so closely related.

### Carabidæ.

Noble M. Eberhart.

For The Hoosier Naturalist.

Prominent among the families of COLEOPTERA, or beetles, is the family *Carabidæ*. This family embraces predaceous beetles, with a firm, oblong body, and powerful hooked jaws. They prey on herbivorous insects, and larvæ; waiting in the places most frequented by these insects, when they pounce upon and devour them. *Carabidæ* may be easily distinguished by the following characteristics:—(1) Six rows of spots, sometimes raised, sometimes sunken, but always six, three on each elytra; (2) Very long legs, phalanges and extremity of tibia hooked. They are rapid runners, often causing lively efforts on the part of the collector, in attempting to catch them. Some species have only elytra, the true wings being wanting.

In *Carabus maeander* the spots are raised. This species may be found very early in the spring; as early even as the first week in March, and as late as November. *C. maeander* is the principle food of the kinglet; the latter however being very fastidious in its taste, eating only the contents of the head and abdomen.

*Calisoma* is one of the most important genera and contains many large and handsome beetles. The finest in point of beauty is *C. Lenetator*, being a brilliant green. This species is one of the largest, nearly an inch and a half in length. The spots on this specimen are only discernable upon close inspection. All *Carabidæ* make fine specimens for the cabinet, and are collected with avidity by entomologists in general.



## A Treat-Ode.

"'Serious-like!" said the treetoad,  
 "Ive twittered I for rain all day!--  
 An' I got up soon,  
 An' hollered till noon,—  
 But the sun hit blazed away  
 Till I jest clumb down in a crawfish-hole,  
 Weary at heart an' sick at soul!"

"I dozed away fer an hour,  
 An' I tackled the thing again;  
 An' I sung-an' sung—  
 Till I knowed my lung  
 Wuz jest about give in,—  
 An' then, thinks I, ef it do'nt rain now,  
 There're nothin' in singin' anyhow!"

"Once-an'-a-while some farmer  
 Would come a-drivin' past,  
 An' he'd hear my cry,  
 An' stop an' sigh—  
 Till I jest laid back, at last,  
 An' I hollered rain till I thought mythroat  
 Would bu'st wide open at ever' note!"

"But I fetched her! O I fetched her!—  
 'Cause a little while ago,  
 As I kindo' set,  
 With one eye shet,  
 An' a singin' soft an' low,—  
 A voice dropped down on my fevered brain,  
 A-sayin',—'Ef you'll jest hush, I'll rain!'"

*James Whitcomb Riley.*

## Recreations in Zoology.

M. W. BRUBAKER.

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Many children and youth have not the opportunity to make a systematic study of zoology, or are deterred by the many long, hard names in the classification; and yet all read with interest and delight the many curious and wonderful facts concerning animated life, when presented in a simple way. It is the intention thus to present many pleasing and instructive facts in this article. Isolated and fragmentary though they may be, yet it is hoped they will prove a source of instruction and lead some to study more into the mysteries and beauties of nature growing lovingly familiar with all her moods and phases, exemplifying the beautiful lines of Longfellow in his "Tribute to Agassiz":—

"And Nature, the old nurse, took  
 The child upon her knee,  
 Saying, 'Here is a story-book  
 Thy Father hath written for thee.'"

The adaption of the color of an animal to that of surrounding objects in its native wilds is termed MIMICRY, and is one of the most wonderful provisions of nature for the safety of animals. Examples of this are seen in the TIGER. Inhabiting Southern Asia, its home is in the long jungle-grass with which the coloring of its stripes so exactly assimilates that it is impossible for unpractised eyes to discern it at even a short distance. The leopard of Africa and India is striking in its mimicry,—the skin being marked with circles of dark spots instead of stripes, corresponding to the leaves of the tree in which it conceals itself. Again, the mimicry of the giraffe resembles the branchless trunks of the trees among which it lives and upon whose tops it feeds. The baboon, with its dog-like muzzle, is the ugliest and most ferocious of the monkeys. It dwells among craggy rocks which it climbs with great agility. It eats roots, eggs, insects, and even scorpions, which it devours with wondrous dexterity, whipping off their stings so quickly as to give them no chance to strike. The bear howler, one of the monkey tribe, has the power of dilating the larynx so as to render its voice louder than the roar of the lion, having been heard two miles away. The fur of the sable and mole, being inserted vertically, will lie smooth in any direction. Contrary to common belief, the expression, "catch a weasel asleep," is not based upon the extreme wakefulness or caution of the animal, but upon the fact that it sleeps so soundly that it may be caught with ease and carried away. The badger can bite more fiercely than any animal of its size. Its skin is so loose that it is seized with difficulty by its foes; while it can turn itself in it so as to bite most effectively. The otter will amuse itself by coasting down a snow-bank in winter and a slippery clay-bank in summer. They play in companies, and seem to enjoy the sport as much as boys and girls do. The grizzly bear is the most ferocious carnivorous animal of North America. Its claws are often more than five inches long and move independently of one another. It is strong enough to carry off a bison and dig a pit to bury it in. Wood says that such is the terror inspired by this formidable beast that no other animal will dare to touch a deer which it has killed and left behind; the simple print of its foot frightening away a hungry wolf. Its tail is very short and entirely hidden beneath its fur. The In-

dians sometimes amuse themselves with the perplexity of persons who are ignorant of this fact, by asking them to lift the carcass of a grizzly, which they say is easily done if seized by the tail. The dromedary, has one hump, the Bactrian camel, has two. The many-celled stomach of the camel, which acts as a reservoir of water, enables it to go a week without drink; while the gradual absorption of its fatty hump, as long without food. This "ship of the desert" constitutes the wealth of the Arab. Its milk and flesh furnish him food; its skin, leather; its hair, clothing; its excrement, fuel; and in an extremity, the water in its stomach will save his life. It will carry 600 and even 1000 pounds, and travel 200 miles in twenty-four hours. There are no buffaloes in America. The animal commonly called so is the *bison*, having a distinct hump on the fore-shoulders. The buffalo proper inhabits Southern Asia, and is distinguished by its enormous horns whose length often exceeds four feet, with tips five feet apart. Although the zebu has the distinctive hump it is not a bison, whose hump consists of muscles that move the head, while the hump of the zebu consists of fat.

When two goats meet in a narrow and dangerous path, one will lie down and the other will walk over its back, making the passage in perfect safety. The horns of the mountain sheep, found wild on the Rocky Mountains, sometimes grow so long, and curve so far forward and downward, that it cannot graze on level ground. The hair on the body of the prong-horn antelope stands out straight, and being hollow like a bird's feather, when bent, will not resume its form. A breed of sheep found in Syria, have tails weighing from seventy-five to one hundred pounds, which the shepherds support with a board set on wheels. A whole company of peccaries are accustomed to back singly into a hollow log to sleep, the last one acting sentinel. This one being shot, the others successively take its place, so that if skillfully managed by the hunter, the whole number may be captured. The zebra is the most elegant of quadrupeds, but all attempts to domesticate it have utterly failed. The veins of the whale are destitute of valves; hence this huge animal bleeds to death from a single thrust of a lance or harpoon. The cry of the bat is so shrill that the ears of many persons cannot detect it. It is frequently infested with the common bed-bug, and this fact may answer the question of the despairing house-wife.—"Where can the

bugs come from?" The bat lies dormant in the winter, when its respirations sink from 200 to 30 per minute. The long, slightly curved, chisel-edged, incisor teeth of the rodents or gnawers are kept sharp by constant growth at the base and friction of the edges. If one of them be broken off, its opposite continues to grow, sometimes curving, in which case it locks the jaw and the animal starves to death. The enamel of the incisor teeth of the beaver is extremely hard. Wood says a tame beaver will take an apple in its fore-paws, and by dexterously turning and pressing it against its incisors, pare it as readily as if done with a knife. The beaver does *not* use its tail as a trowel. Some varieties of the armadillo will burrow so fast as to sink out of sight before a person on horseback can dismount and catch them. When Captain Cook visited Australia, he saw, at one time, an animal on shore in the hands of the natives, which excited his curiosity. He sent sailors to bring it to him; and after examining it found that it was unlike any other known animal. He again sent the men ashore to enquire of the natives its name. They replied in their own language, "I don't know" which sounded to the sailors just like "kan-ga-roo," and the animal bears the name till this day. Such is the story. Will the reader please look in Webster's Unabridged for the derivation of the word? A bird will breathe through the end of a broken bone when the windpipe is tied. The swallow and pigeon fly at the rate of more than a mile a minute. Cedar birds will often alight on the limb of a cherry tree, the outer one of the series will pluck a cherry, pass it to the second, he to the third, and so on to the end, and then back again to where it started, repeating the manoeuvre several times until, the appetite whetted up, someone of the line will take a bite and spoil the fun. (Steele.) The cow-bird lays its eggs in the nests of other birds, whose appetite is similar, and whose eggs resemble its own but which hatch two days later. The young cow-birds being larger, get the most food, while the others are killed or starved. The cuckoo also, builds no nest but does as the cow-bird, except that its young hatch at the same time as the others which it throws out of the nest to perish. The road runner, a ground bird of Southern North America, runs so swift of foot that for a quarter of a mile, it will outrun a fleet horse. The owl is the only bird that can bring both eyes simultaneously to bear upon an object. The condor is the largest bird of flight

known. It can sail in the air for half an hour without once flapping its wings. How, is unknown. Owing to the posterior tendons, and peculiar construction of the foot, birds of prey cannot open the foot when the leg is bent. Hence their grasp upon the perch is involuntary. This may be seen by watching a chicken when walking. It closes its toes as it lifts the foot, bending the leg, and spreading them out when they touch the ground. The snake bird or water turkey is found throughout our Southern coasts. Even before its young leave the nest a parasitic worm is found in their stomach, which works its way to the brain and there thrives in clusters of ten or more. Nineteenths of the grown birds are thus infested, and yet seem in perfect health. The expression "drunk as a loon," is based upon the fact that its legs are so completely buried in its body that its progress on land is a constant succession of staggers and tumbles. The migration of birds is a curious fact. Its true cause is unknown. Steele says,—"One morning the trees of Independence square, in the heart of Philadelphia, were found filled with crows. Not a crow was to be heard nor a movement seen. The birds appeared to be awaiting in silence further instruction. After a time several new-comers glided in among them, threading their way through all the flock, when suddenly the teeming thousands rose simultaneously and departed as mysteriously as they came." The chameleon leads a double life. It may be asleep on one side and awake on the other. One eye can look forward and the other backward. It never moves two of its feet at once; and often carries one slowly forward after the other with the imperceptible movement of the hour-hand of a watch. Its long gummy tongue can be thrust out almost as quickly as lightning, and to a distance twice the length of its body. The archer fish can shoot a drop of water from its mouth with such force and accuracy as to kill a fly at a distance of two or three feet. The wonderful muscular power of the flea enables it to jump two hundred times its own length and draw a hundred times its own weight. Fleas have been trained to show their strength and docility. The "learned fleas," exhibited in Paris, went through military evolutions, standing on their hind legs and shouldering tiny spears; and two of them drew a companion in a little wagon, a fourth sitting on the coachman's box and wielding the whip. The spectators viewed this marvellous exhibition through magnifying glasses. (Steele)

The "thirteen-year" locust appeared in many states in 1881. The "seventeen-year" locusts appeared again last year. The earwig, a small insect, sits upon its eggs till they are hatched, and then broods its young as a hen does its chickens. When the common earth-worm or angle-worm is cut in two, in the anterior half will form a new head; in the posterior half, a new tail. So slow is the digestion of the leach, that a single meal will last it a year. The common slug or snail has its eyes at the end of its horns. The house fly has 4,000 eyes. Some species of the beetle have 25,000 eyes or facets. Such an eye is termed a compound eye. A strong lens or a small microscope will reveal many wonders about our most common insects, and lead to habits of careful and thoughtful investigation. Let us scan fair nature's work to learn useful lessons from her open pages.

"The works of God are fair for naught,  
Unless our eyes, in seeing,  
See hidden in the thing, the thought  
That animates its being."

### Marengo Cave.

*S. R. Lambden.*

Passing from the monotony of the northern prairies and rolling plains to the ever changing limestone hills of Southern Indiana, the eye feels the poetic thrust itself into the prose. The pristine beauty of the remains of the primeval forests, the simple manners of the people with their old-fashioned chimneys and fireplaces, the cliffs of limestone and tunnels to admit the business world, all serve to relieve the eye from its lonesome stretch. Nor need it be content with viewing external objects alone, for concealed within dark caverns are objects beautiful waiting for admiration. A faint description of one of those caverns, discovered in 1883, at Marengo, Crawford Co., is the object of this article. But to attempt a scientific description would put one down for a Charlatan, for he who would make a flying visit and then attempt to write a geological description of what he had seen, deserves no better title. Nothing of scientific worth, is the product of an hour. Weeks and months of "dead work" as Prof. Lesley calls, it must be given before one should dare venture an opinion. But a few of the experiences of a visit which was not altogether for idle curiosity, may not be out of place.

The entrance to this cave at the brow

of the hill on the outskirts of town, leads downward at an angle of about thirty degrees, and a distance of about forty yards. A stairway for some distance makes the descent easy and safe. If in August, one's first experience is a change of climate from one-hundred to fifty-four degrees. As the visitor proceeds for some distance the cavern enlarges and he at once finds himself pursuing the course of what was once a small creek which has evidently found an exit to some lower channel. A short distance from the entrance is the largest chamber of the cave. With a ceiling fifty or sixty feet high, frescoed with calcareous incrustations varying in colors, it presents to the eye a grandeur hardly to be surpassed. Either from a real or fancied resemblance the various objects of nature and art, names have been given to many of the curious things. But all except for idle curiosity, feel as well off without these names as with them. But Tucker's Defeat has a significance above most others, it is where Tucker got fast.

There being but little water in the cave, the floor in the greater part is dry, but a few places are muddy from the excessive drippings probably the result of passing under the bed of a neighboring creek. No fossils have yet been found, nor do bats seem to inhabit this as they do most other caves. In a certain part if any organic matter is allowed to remain a few days it will be covered with a beautiful snow-white mould. But the most attractive feature of all is the stalactite and stalagmite formations. The rain as it descends through the air, and as it passes through the decaying matter on the surface of the earth, absorbs carbonic acid, and then coming in contact with the limestone, forms a bicarbonate. This as it enters the cavern comes in contact with a current of air gives off the acid and deposits the carbonate forming the stalactites which hang from the roof, and the stalagmites which extend upward from the floor. The Marengo cave is especially rich in these formations. Thousands of stalagmites from a few inches to eight feet in height, rise from the floor in their sacred whiteness to remind one of a Cemetery. Millions of stalactites varying from an inch to six or eight feet in length, hang from the roof like so many icicles. Many of these extend to meet the stalagmite from below, as if to form a column to support the roof. Owing to the presence of coloring matter absorbed along with the lime, they vary from a clear white to a dark brown. By breaking any of these the crystalization is beautifully shown.

The cave has never been surveyed from

the fear that some other party may find an entrance. It requires three or four hours to make the journey which is probably less than three miles. Nearly all this can be accomplished without stooping. Other channels extend from the main channel in various directions. By removing some earth new chambers may still be discovered, but it is not probable that very many more will be found.

### Notes on Maine Birds.

Geo. H. Berry.

2. *Hylocichla fuscescens*, Wilson's thrush, Baird, is abundant, making the woods ring with its song at early morn and in the evening. The bird is reddish brown with buffy gray breast, dotted and spotted with brown. It nests in low evergreens, making a bulky nest of leaves, and lays four greenish-blue eggs, unspotted: .91 by .62. This thrush is extremely variable in its nesting locality. In '84 fourteen nests were found in a grove of some three acres, while in '85 not a bird nested there, and the most of them were to be found in a swamp nearly a mile from the grove.

The eggs vary considerably in color and size, as I found a set June 19, '85 that were of a light bluish green, averaging .76 by .60. They nest in May and June. Associating with these and nesting in the same locality are to be found their cognate, 4a. *H. ustulatus swainsoni*, Olive-backed thrush, Ridg., the eastern variety of the Russet-backed. It differs from 2 in having an olive brown back, while its breast is lighter and marked with larger blotches of brown. The nest is similar while the eggs are blue green, marked with faint spots of lavender, brown, yellow-brown, and olive; .89 by .60. This bird is rarer than 2 but I have always found it to be tamer. I have never found Wilson's thrush on its nest but have almost put my hand on the olive-back, before it would leave its eggs. Nests in May and June.

5a. *H. unalascae palasi*, Hermit thrush, Ridg. is rarer yet than either of the others.

Found but one nest and that was placed on the ground beneath a small hemlock bush. The nest was built up from the ground about four inches, composed entirely of fallen leaves; four eggs, light bluish-green, unspotted, averaging .90x.60 and hardly distinguishable from those of the Wilson thrush. All these are so nearly alike in color that the collector should be very careful to fully identify the bird, before taking the eggs.

(To be continued.)

**Curious Ferns.***Geo. E. Briggs.*

For The Hoosier Naturalist.

Few people are aware of the many queer productions of nature in the plants that surround us. This is especially true in the fern family or felices. A great many people are fond of ferns. They enjoy looking at them, and like to cultivate them, but they fail to see the real attractions that interest the botanist. In the following I want to describe in as simple language as possible, some of the curious ferns of our eastern United States, so that the youthful readers of this magazine may be able to recognize the ferns and appreciate their beauty.

I think one of the most curious if not the prettiest of the fern tribe is the "camptosorus sluzophyllus" or walking-leaf as it is commonly called. This fern is exceedingly peculiar. The fronds are lanceolate and taper to a long point. This apex bends over and takes root, thus producing another plant. Hence we have the name walking-fern or walking-leaf. By this peculiar characteristic, the genus may be recognized, as this is the only fern that walks. The walking-leaf grows in tufts usually on rocks. There has been a great deal of controversy in regard to the kind of rock on which it grows. Some writers have observed it on limestone and some on sandstone. But I believe the general opinion now is, that it is most prevalent on limestone rock. All the specimens I have ever collected were growing on this kind of stone. It is a very variable fern. Specimens have been observed with double fronds, one of the auricles or ear-like lobes having grown out to almost the length of the main blade and rooting like its parent or, as one might say, its sister frond. Also a specimen has been found in which the frond was remarkably short, wide, and obtuse. One characteristic is generally constant and that is the intermingling and crossing of the veins, forming a dense network. Early botanists overlooked this peculiarity, and placed it among the "Aspleniums," but in 1835 it was transferred to "Camptosorus." This fern is not common. Its limits are given as west New England to Wisconsin and southward. The best month for collecting is July.

Another somewhat curious and exceedingly rare fern is the *Schizaea pusilla*. It has a particular interest to collectors of our native plants, from the fact of its having no close relation in this country. It is found in only a few places, in the state of New Jersey, and not at all abundant in any of these places. Its discovery is

of recent date and botanists in N. J. keep a sharp lookout for the "little beauty." It is claimed that it was discovered by Dr. C. W. Eddy, near Quaker Bridge, N. J. He was accompanied by LeConte, Pursh, and Whitlow. Eddy and LeConte found all the plants but Pursh claimed the discovery himself. The above is given by Cooper and Torrey in manuscripts dated 1818. Again Cooper says: "first found in 1805 and not again observed till 1818." Since this time there has been a great deal of wandering as to the real discoverer. The name "*Schizaea pusilla*" was probably given to the fern in comparison with the large tropical species of Australia, Tropical America, and the Himalaya mountains. Most all of these species have the same peculiarity as our own, that is of being local. Since its discovery the *Schizaea* has been found in Nova Scotia. Wherever it has been found it has been protected by thickets or swamps and exceeding difficult to get at. The fronds of the *Schizaea* are clustered, simple, linear, filiform, tortuous, 3 to 6 inches long, and are found in August.

The *Lygodium* climbing fern next calls our attention. The fronds of this fern are twining or climbing. Hence its common name. These fronds bear stalked and variously lobed divisions or pairs. The stalks are from ten to twenty feet long coming from slender rootlets. The short, alternate branches or petioles are two-forked, each fork bearing a round, heart-shaped, palmately lobed frondlet. The fern grows, in shady places and no prettier sight can be found than the delicate "*Lygodium*" twining in and around the bushes and stone walls of the wood. The geographical limits of the climbing fern are Mass. to Virginia, Kentucky and southward. In a swamp near Windsor, Conn., the *Lygodium* is found in abundance.

The *Ophioglossum* is a queer looking fern, and well worth examining. It is much like the *Botrycium*. The *Ophioglossum* is commonly called the "adder's tongue." It derives its name from the Greek, meaning a serpent and tongue. The adder's tongue is found in bogs and wet meadows during the month of July.

Other curious ferns are the *Botrycium* or moonwort, *Chelanthus* or lip fern, and *Osmunda* or flowering fern.

Most of the ferns I have described are not very common, and some quite rare. But if any of the readers of this should come across any of these he should collect and preserve them, whether he is a botanist or not as they will be of use sometime. In collecting, specimens should contain all parts of the plant, both fertile and sterile, frond and the root.

### Practical Hints on Collecting —Coleoptera.—

The larger the net, the better it will of course be adapted to the purpose. A strong wire ring of one to one and one-half feet in diameter with a bag of muslin of at least the same depth, firmly fixed to the end of a stick about 2 to 3 feet long, represents the most simple and durable beating net. To make it more convenient for carrying, quite a large number of different constructions have been recommended.

In another form which is much used, the ring consists of different parts, two or three, which are connected by means of joints, and the ring can be folded when not in use. By means of a screw the ends of this ring are firmly fixed into a tube, which again fits tightly on the end of an ordinary walking cane. In any fishing tacklestore, rings of this or of similar construction are for sale, and it is therefore unnecessary to give a more detailed description.

Woodboring coleoptera may be captured, often in large numbers, by sawing off the dead branches of trees in spring, gathering plants with pithy stems, such as the elder, also reed, etc., and piling up these materials in an empty room with tightly closing door and windows, the latter best made of wire screen, so as to admit of a free circulation of air. If a special room for this purpose is not at disposal, a large box connected with a small one of which several sides should be made of glass will answer. The insects after having made their way out of the wood during spring and summer will be attracted by the light to the windows of the room, or into the smaller box and can there be easily captured.

Another opportunity for wholesale capture of beetles is often afforded to the New York collector during summer on the beach of Coney Island and Rockaway. At any time insects washed ashore by the tide, may be found there, but after a strong easterly wind the number and variety is

quite remarkable. The most of them are certainly swept by the wind into the sea at the Highlands on the Jersey coast and carried by the tide to the opposite shore, but some are evidently carried a long distance, *Omophron nitidum*, *Lec. Alaus myops*, *Fabr.* *Tragidion coquus*, *Linn.* and other evidently southern species having been found on the beach.

Besides these a great many other species living under seaweed, or pieces of wood and other objects cast up by the tide may be found there.

But many species of coleoptera can not be captured in the manner alluded to, and therefore traps have to be laid for them, or other means employed to force them to leave their hiding places.

I will cite in the following a number of traps or methods of capture known to me, but as almost every collector has some method of his own, often a jealously guarded secret, it will be far from exhausting this topic.

For the capture of carrion beetles a method has been described in a previous number, but the bait there recommended viz: r fuse meat, will only attract a very limited number of species, although it is of all of these methods, causing without exception a great discomfort to our nasal organ, the least objectionable.

Carrion of different kinds of animals will attract different species of insects.

Some of these only feed upon the flesh, while others take to the skin and hair or feathers of the carrion; and others again make their appearance only after the skeleton is exposed.

In baiting for *Necrophoridae* different sorts of bait i. e., mamalia, birds, reptiles, should be laid and the inspection not discontinued after the flesh has disappeared, and then only the most interesting and rare species can be captured. By a piece of cord fastened to it the carrion can be lifted and slightly shaken over a bag into which the insects will drop. Smaller bait may be enclosed in a wide mouthed bottle, dug up to the mouth in the earth.

(To be continued.)

**Breeding Habits of *Ardea herodias*****As seen during a visit to****Crane Town.**

Every year the Great Blue Heron return from their winter sojourn in the South and generally seek a suitable place for their nests. Being gregarious, a nesting place often assumes vast proportions, covering acres, and is called "Crane Town" or "Rookery." The town in question, is about 20 miles from Valparaiso, in the Kankakee Marsh; which in the spring, is invariably covered with water, four or five feet deep. This portion of the swamp was visited by a fire which destroyed many trees, and left only high, black stumps, with a few charred branches.

To the uninitiated, Crane Town is inaccessible. We were favored, however, with guides: old trappers, with whom arrangements had been perfected by letter.

We left Valparaiso very early in the morning, but found, on reaching the landing, that our men had been patiently waiting for us, for more than two hours.

There were two long, narrow boats, that they called "pointers," and I might give you a "pointer" right here, that they were very long, very narrow, and very easily upset.

Our luggage was placed at one end and we directed to sit on the bottom of the boat, at the other end. The narrowness of the boat, however, made this a very unpleasant task. The marsh being passed, we made rapid progress up the muddy Kankakee.

For wildness and novel grandeur, the river and surrounding forest, excel every thing of the kind I ever saw.

After ascending the river for two or more miles, we approached a small island; the only one for miles around, on which was a low hut, built by the trappers.

With difficulty we extricated ourselves from the boat, and entered the hut. The walls were black with the smoke and grease of a dozen winters. On one side

was a tier of bunks, stea-boat fashion, made of rough poles, and covered with blankets; later, we found them comfortable sleeping places. In one corner was a stove, with necessary culinary apparatus, and strewn around rather promiscuously, were dogs, traps, hides, guns, and fish-spears. The place was so extremely odorous, that we were compelled to beat a hasty retreat.

I suppose our olfactory nerves became paralyzed, for in a short time we did not notice the "odors various," and ate our dinner with a keen relish.

After dinner we reluctantly entered the boats, and were poled through many winding passages, until, unexpectedly, we reached Crane Town.

It was a wonderful sight. As far as we could see, were great, charred, forest monarchs, patiently supporting in their blackened arms, from one to six nests. The water under the nests was covered with rubbish that had been dropped during their building.

Our first shot caused such a din and commotion among the residents as we had never heard before. It was deafening. It seemed like all the heron of the universe had assembled to give us battle, and their wide, outspread wings, as they circled round and round above us, literally hid the sun from view. Recovering from our surprise, we fired rapidly, and although the birds soon rose out of reach of our guns, yet we obtained five fine fellows in a very short time. After this fusillade they became wary, and it was with difficulty one could be approached. Becoming tired of this, we directed our attention to the nests, which were sixty and seventy feet from the water, and resembled huge inverted brush heaps, many of them being more than eighteen feet in circumference. The upper surface of the nest was flat, with a slight depression in the center, which was sparsely lined with twigs.

Four eggs generally comprised a set, they were greenish-blue, unspotted, and varied in form, from elliptical to oval. Their average length was 2.75 inches.

Many of the larger trees had five or six nests in their branches, and were inaccessible without climbers: so, to reach the eggs, climbable trees had to be selected, and even this was dangerous and fatiguing work. During the afternoon, seven nests were examined, three of which were empty, the remaining four had four eggs each, and from their rareness (?) abundantly paid us for our trouble. Their market value, among naturalists, is about \$2 per dozen.

\* \* \* \* \*

B—Sandwich, Ills.

## The Hoosier Naturalist,

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R. B. TROUSLOT,  
EDITOR AND PUBLISHER.

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*Terms of Advertising made known on  
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### OUR NEW YORK AGENT

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When this is crossed, your subscription  
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VALPARAISO, JANUARY, 1886.

THIS world is full of changes, one of which we chronicle. Prof. A. C. Jones desiring to resume his school work, sold his entire interest, not only in H. N. but also in The "Ideal" Book House, to the junior member of the firm, who will continue business at the old stand.

The Jan. number of the *Naturalist* has been delayed somewhat, in consequence of this, but, after Feb. issue, will appear promptly on the first of the month.

The increase in size, makes a corresponding increase in the subscription price necessary, which now is 75 c's. including premium, or 60 cts. without premium. The numerous and valuable premiums offered in many instances, make the *Naturalist* a gift. As an illustration of this, the *Life of James A. Garfield*, a beautiful work of 760 pages, bound in cloth, and finely illustrated, formerly selling at \$2.25, is now sent to any one, post-paid, for \$1.41 and you will also receive The *Hoosier Naturalist* free for one year. We sell the book for \$1.25 and 16c, to pay postage and packing. Again, the *Popular American Dictionary* has 544 pages, 400 illustrations, and contains over 32,000

words with accurate definitions, proper spelling and exact pronunciation of each. This book will be mailed to you for 85c., and you will also receive The *Hoosier Naturalist* free for 1 year. My price for the dictionary is 75c's. with 10c's. for postage and packing. Probably *the best offer* of all is in connection with Prof. Oliver Davie's New "Key to the Nests and Eggs of North American Birds." We say *best*, because this book is just *indispensable* to every egg collector., old or young. The price of this beautiful work is \$1.00 pre paid, and if ordered at once, we will send you The *Hoosier Naturalist* free for 6 months. Old subscribers when ordering this book, can have their time extended, or can have the paper sent to some friend, we prefer the latter.

The success of the first edition, made the rapid sale of the second one an assurance. Already Mr. Davie informs us, orders have been received for more than one-half of the new edition, so order at once and be happy.

For further bargains, look on pp. 91 & 92.

ANY book published can be obtained of H. N. Friends please remember this and send your orders to us.

Liberal discount on large orders.

LITTLE CHANCY (5 years old) was busily engaged trying to read The *Hoosier Naturalist* when something about the heading attracted his attention and he slowly read "The Hoo-sier Naturalist," "the hoo's-er-naturalist," "hoo's-er naturalist," when, looking up quickly, he inquired, "who's your naturalist papa?"

"MAIN NOTES," by Geo. H. Berry, are from personal observations with but a few exceptions. He says:—Measurements are from those in my collections, and col. or the same. I am aware that in many cases my descriptions of egg and size, does not correspond with that of Davie's, but they are carefully written, with the egg before me, and caliper in hand."— It is only by recording observations as Mr. Berry has done that we can determine the distribution of our birds.



TWENTY-FOUR pages this month.

COLD weather for the birds this. Reports of their freezing to death, have come in from several localities.

MR. Wm. H. Warner & Bro., of Phila., have our thanks for a beautifully executed "Merry Christmas and Happy New Year" medal.

WE will mail you H. N. for six months, and Davies new *Key To the Eggs and Nests of North American Birds*, for only one dollar.

READ on page 91 how to get H. N. for nothing. Notice the 50c. premiums to each subscriber, on page 92 and the additional premiums to agents.

WE are making an effort to have "Main Birds" illustrated. Oologists note this and aid us with your subscriptions. Think of it, nearly 300 pages for only 60c.

THE "Ornithologist and Oologist" has been before the public for nearly 10 years. It is an excellent magazine, ably conducted, and is replete with choice articles by eminent writers and collectors. It should be a constant companion to every Ornithologist and Oologist. Illustrated, 20-pp., monthly, \$1.50 per year.

WE have to thank our friends for the very liberal manner in which they have supplied us with matter for this edition. Several interesting articles were of necessity reserved for next issue, among them "Oology, Twenty Years Ago," by "one of the boys" who has collected "many a season," will give us a fine idea of what collecting was then and is now.

EVERY Oologist and Collector in the country should subscribe for H. N. Examine this number and compare it with the five back numbers and then draw your own conclusions for the future. If it does not contain more interesting and original matter for the money, than any other periodical of the kind ever published, I will present you with a year's subscription.

*Hoosier Naturalist* for the year will contain nearly 300 pages. Surely, Collectors, this is worth 60c. of your money.

ANY one sending us 75c. for "The Hoosier Naturalist" for 12 months, will be entitled as a premium, to any 50c. book advertised in our columns, or any several books aggregating 50 cents.

THE number of amateur papers received is simply astonishing, yet we greet them with pleasure. Time spent thus keeps the boys busy, consequently off the streets and out of mischief. The editors of the numerous papers received, will please accept our thanks for them.

WHEN you have learned our rates for advertising please do not ask for credit. We have to pay cash to our printers and cash for our paper, consequently, when an order comes for advertising space, cash must accompany the same, or it will not appear. It is sure to pay you. We have not heard of a single case in which the returns were not ample.

ALVAH DAVISON the enterprising editor of "The Youth's Ledger" has kindly favored us with several beautiful, embossed floral cards. They came just in time for Christmas. Mr. Davison has our thanks for the same. He makes a very liberal offer when he agrees to send "The Youth's Ledger" three months for six cents. Address him at Helmetta, N. J.

THE Hoosier Naturalist, without premium, will be sixty cents for the year, thirty-five cents for six months, always in advance. Collectors, it is in your power to embellish H. N., each month, with numerous engravings. Put your hands into the abundance of your pockets, and extract therefrom a fifty cent piece and a dime, invest them in stamps, which enclose in an envelope addressed to the publisher of Hoosier Naturalist. If several hundred of you will comply with the above, rest assured friends, you will reap a rich harvest, and make a profusion of illustrations a certainty.

THERE are several new "ads" in this issue, that will pay you to examine.

IN the future, all postal card requests for a copy of H. N., will not be noticed. Sample copies are 7 cents.

WE would most respectfully call the attention of all Taxidermists to our price list of eyes, of Hurst manufacture, p. 92, Orders filled promptly.

THE star fish, eggs, geological specimens, etc., recently received from W. S. Beekman, are all fine. Every thing he sends out is of a superior quality.

COLLECTORS if you wish to order specimens of eggs or skins, and desire to receive them in *first-class* condition, patronize R. E. Rachford & Son, Grigsby's Bluff, Texas. We speak from experience.

MY 8-page, illustrated, circular of Penman's Supplies, for a 2-cent stamp, and 62-page, illustrated catalogue of art goods, for 15 cents. The price of the catalogue may be deducted from the first \$1 order.

IT should be understood that each subscriber is entitled to an exchange or want notice of not exceeding 30 words. Any number of words over 30 will be charged for at the rate of  $\frac{1}{2}$ -cent per word. Indirect soliciting for cash orders, will not be inserted.

H. D. HILL, the Mazon Creek fossil man, of Morris' Ills., has a large business. He writes that he devotes his whole time to collecting fossils, that it is hard work, and that he will shortly send us an article. See his illustrated "ad" elsewhere.

MR. Fletcher M. Noe, of Indianapolis, Ind., favored us with a full report of the State Academy of Science meeting, which was held at that city, Dec. 29, 1885. We thought we had laid it away carefully, but diligent search fails to bring it to light. There will be, however, a meeting at Brookville, Ind., in May, at which time we hope to meet and form the acquaintance of many of Indiana's Naturalists and Collectors.

*Youths Golden Hours* hailing from Dayton, Ohio, is an illustrated monthly, containing many excellent and spirited articles. It is edited by Elliot S. Burns, of 132 Terry St., and deserves the support of all parents who wish to supply their boys and girls with interesting yet wholesome and moral reading matter.

MR. C. L. D.— of Freeport, Kansas, recently sent to Prof. Brown, "a live tarantula." He writes, "It has been in my possession about six weeks, during which time it has had nothing to eat. As it is a very poisonous insect, it would be best to handle with much care. Here it is feared as much or more than the rattlesnake."

Query. Is not this the common "Trap-door spider"?

The Tarantula spider, is a native of Europe.

#### Y. A. C. A. INVITATION.

(Published by request.)

About two years ago one of the undersigned proposed to form an association which would have as its object the collection of specimens and facts, relating to the study of the Natural Sciences, Philately, Numismatics, and Antiquities. No one could be found, however, to aid him in this work, and the idea was not carried out until lately, when W. T. R. Bell, Jr., tendered his services, which were eagerly accepted. As a result the Young American Collectors Association now comes forward and asks for your support.

The Y. A. C. A. has an official organ, "The Young American Collector," published by the Cyclostyle process, (which makes illustrated work easy) and which is free to every member. A Hand Book will be issued, at ten cents per copy, after the Y. A. C. A. has been firmly established. Send stamp to the Secretary for circulars, constitution, etc.

W. T. R. BELL, JR., Pres.,

King's Mountain, N. C.

PORTER F. COPE, Sec. and Treas.,

718 Spruce St., Philadelphia, Pa.

## DAVIE'S EGG CHECK LIST.

The hearts of the egg collectors will now beat with joy, for it is our privilege to announce to them that the new edition is now ready and at a price too that places it within the reach of all. It contains the breeding range of the species, the habitat, and full description of all the nests and eggs that are known to date.

A beautiful feature of the book will be the seven full page engravings by Theodore Jasper, these alone are well worth its price. This work is not only invaluable to ornithologists and oologists, but will be an instructive, interesting and valued treatise to those who have but a passing glance to bestow on natural history. The young collector will find the latter part of the work of especial benefit to him as it gives concise and careful directions for collecting nests and eggs. Having made especial arrangement with Mr. Davie we are prepared to fill all orders and as an inducement to order at once, we will present to each purchaser within the next month, a six month's subscription to THE HOOSIER NATURALIST.

The check list is bound in paper and will be sent as above, post paid, for only \$1.00.

A series of short, but interesting papers on "Fabulous Animals" from the pen of G. Dallis Lind M. D., instructor in the Sciences at the Central Normal College, Danville, Ind., will commence in our next issue. Prof. Lind is the author of "Man" which is a large octavo volume of 750 pages with 275 illustrations. This is a book for the student, the home, and the general reader. It is divided into Book I.—PRIMEVAL MAN, in six chapters; Book II.—MAN IN HISTORY, in twelve chapters; Book III.—NATURE AND CONSTITUTION OF MAN which is subdivided into Part I.—The wonders of the Human Body; Part II.—Right Living; and Part III.—The Mind. It can be obtained from W. L. Klein & Co. Minneapolis, Minn., or from Dr. Lind. The prices are, for fine cloth, \$3.75, half morocco \$4.75.

Now is the time for resolutions and we have resolved to make this the largest and best natural history paper published for the money, in America. Reader, do you think this a rash promise? Compare this number with those issued and judge.

We have refrained thus far from publishing all press comments and complimentary letters, but in the near future a limited number will appear. Our brother editors and friends have our warmest thanks for their many flattering commendations and words of approbation. It is a poor excuse of an editor that is not susceptible to praise, and our own belief that the paper isn't as good as it might be, makes us strive all the harder to improve it when a really whole-souled encouraging letter comes in; especially if that letter contains the all important seventy-five cents. All we ask is, that you will just keep on sending them, especially the seventy-five cent ones.

It is with pleasure that we call your attention to "New Discoveries in Taxidermy" by Oliver Davie. Many of our Taxidermal friends will probably find therein much to think about and ponder over. In answer to the probable questions as to how this and that method are executed, we will say, Mr. Davie has in preparation one of the most complete works on taxidermy ever presented to the public which will explain fully all he has but briefly referred to in this article. We will speak of this "new taxidermy" later.

We received a live white owl to-day from Hanna Station, Ind., and have recently heard of several others being seen in this neighborhood. We also have a great horned owl which associates with his white friend quite amicably.

Mr. L. L. Myers of Hanover Center, Ind., walked quietly into our office yesterday and laid before us two fine nests, one of the wood pewee, which he obtained from an oak, about twenty feet from the ground; the other of a chimney swift. Both were excellent specimens of bird's architectural skill. Mr. Myers has our thanks for these, and we hope he will find time to call often.

## TAXIDERMY.

It is our intention to make this department one of the leading features of our paper.

Our Taxidermal friends are cordially requested to contribute.

### New Discoveries in Taxidermy.

*Oliver Davie.*

For The Hoosier Naturalist.

It would be almost impossible to convince many old taxidermists that there is, at first sight, anything really true in the title I have selected for my subject. That which follows however, will record some of the principal discoveries and inventions which have come under my notice within the past few years, and I will also point out some of the noxious errors which are probably well known to those who have practiced the art for any length of time.

I know it is a hard matter for the little school boy to read in any book but his own and it is certainly hard for a taxidermist to depart from the methods he knows so well, has practised so long, thinks there are no better; and who, as a rule, is too well contented with his knowledge of the subject and gratified because he has the local reputation of being "the best taxidermist in the country."

It will readily be admitted that the art of taxidermy has had, in the past, more followers who were downright "old fogies" than were to be found in any of the existing arts. Generally speaking they have been illiterate men—men whose knowledge of things was very limited, and something literally "stuffed" pleased their eye as well as the graceful lines of symmetry which we find in true works of art imitating nature. Slow to adopt anything new and perfectly willing to continue in that which thousands have failed,

It is true we have had, and to-day have some men who have done something to elevate the art—men of culture and refined tastes: Like Waterton of England, the late Verreaux of France; and two still living, Philipp Leopold Martin of Germany and Montague Brown of England.

But our art has suffered fearfully and almost fatally by those who have practised it lacking inventive genius, artistic skill and ability, combined with good taste and a thorough knowledge of anatomy. All of these qualities are to be found in men who are masters of many of the higher arts, and these are the qualities which characterize the men who attain eminence and distinction in the works of art that possess classical dignity and reflect credit upon their creators.

For the want of such men the productions of taxidermy have been looked upon as curiosities and the men who follow the art as still greater ones.

A master who can lead the popular taste into a new channel must unite boldness in invention and skill in execution. Like J. VanEyck who in his persevering efforts to find an improved method of giving transparency to atmospheric effects discovered the method of employing oil as a vehicle in mixing pigments. We want a Rubens whose invention was boldness, uniting the natural life drawing of the Flemish school with the gorgeous coloring of the Venetians, and the harmony of the three great masters of Italy.

We want a Hogarth with powerful genius who broke loose from the trammels of mere Flemish and Italian copyists and by his pen and brush originated an English school. We want men who are original and thoughtful and who can bring forth new ideas—men of observation who delight to study for a good purpose the inhabitants of Nature's green forests, her mountains and plains, her mighty rivers and "whimplin' burns." Right here, in this connection, we can

find in our own country a Hornaday\* who is doing all in his power to raise the standard of excellence in the taxidermal specimens of our National institution. He is a man possessing every qualification for the position he holds. A hundred more like him would place our art beyond the scoffings of a critical world.

Taxidermal specimens representing Nature's objects in ghastly caricatures have adorned (?) the rooms of peasants and the halls of lords for hundreds of years, but in a short time were rejected as works of art, taxidermy pronounced a failure and in disgust its objects are called "stuffed" ones.

I believe that in the world of ideas words triumph over things.

The word "stuffed" has been applied to the specimens of our art and the people in general have so long been acquainted with "stuffed" birds and animals that the word has ossified their intelligence of the subject and robbed the art of all the dignity that might be attached to it.

In an age of refined taste such words do not harmonize well with the ideal standard of perfection and especially when thrust upon works of art. It does not sound well, is too much of a load and the art that carries it will never be patronized to any great extent. Unlike the works of Grecian sculpture which date from the eighth century B. C., and stand as models of that grand art to the present day, the productions of taxidermy are perishable and will not outlive the stigma of the name applied to them.

Let us then as taxidermists try if possible and expurgate the terms of our art, thereby taking one step towards placing it on a dignified footing. Surely the English language is not so barren that we cannot find suitable words! Mounted birds and animals is a term used by many and it sounds much better. Ever since or perhaps long before the days of Shakespeare people have looked upon his

"alligator stuffed, and other skins  
Of ill-shaped fishes."

I recently heard a noted lecturer before a large audience, compare something stiff and ungainly looking to a "stuffed" bird. This did not give his hearers a very high opinion of the possibilities of our art and it shows at once how the phrase is construed.

The reader's attention is called to another defect in the deficiencies of terms in our language which fail to express the different methods used in taxidermy. There is a term in the German applied to the method of the higher branches of our art of which we seem to have no parallel in the English, and it expresses the style of *method* exactly. It could, I think, be adopted into our language with perfect propriety. I refer to the word "dermoplastick," i. e., the arrangement of skin over plastic materials like clay, or anything of a similar nature capable of being modeled into a form on which the skin can be placed.

The "dermoplastic method" then, in taxidermy, would signify the forming or molding of all large, and many small animals, on a frame or manikin with clay over which the skin is fitted and the seams sewed up. The taxidermal method on the other hand would mean the arrangement of the skin over soft fibrous material, like tow, excelsior, etc.

The "dermoplastick" method is the most perfect of all for mounting mammals. All the hollows, every wrinkle, and every prominent muscle can, with the use of clay be reproduced line for line. Strange to say that in all of the older books on this subject, the use of clay in taxidermy is not mentioned. From this we would infer that all of the specimens in those days were genuine "stuffed" ones.

Having commented thus far upon some of the gross errors in our art I shall now mention very briefly some of the recent discoveries and inventions.

It would be folly however, to think that these devices are intended to make expert taxidermists out of those who have not

\*William T. Hornaday, Chief Taxidermist, U. S. National Museum, and founder of the Society of American Taxidermists.

studied the first principles of comparative anatomy and who have not closely observed the forms and movements of animated nature. While they will certainly assist "our bookish and museum-bred taxidermists, they are nevertheless, intended to aid the true student of Nature and lover of our art in perfecting his work by principles based on the simple nature of the things themselves.

One of the most valuable discoveries is that of a chemical solution which is applied to the skin of a bird immediately after it is taken off. With this solution the skin can be kept perfectly soft and pliable for several years; as soft, in fact, as the hour it was taken from the bird. This will greatly facilitate the transportation of skins in tropical climates. Thousands can be packed flat in comparatively small space, and they can be mounted in half the time required for mounting dry skins, and with far less trouble.

There is an automatic principle in the anatomy of the legs of birds which has been overlooked even by the closest observers ever since taxidermy has been known as an art. It is in giving the proper position to the legs of mounted specimens, and especially when in active attitudes that most taxidermists fail.

How often do we see the postures of mounted birds terribly distorted—herons and rails stepping off like ducks—sandpipers, snipe, tell-tail and plover, running or stooping to drink and catching at aquatic insects in the most unnatural postures, entirely contrary to the anatomy of the birds; which, in their nature, when in motion, are so graceful and hold that marvellous symmetry of outline so necessary to be attained before we can claim any approach to perfection in our work.

While this automatic principle is found in all birds it is more noticeable in long-legged ones, and by the application of an artificial contrivance, formed on the basis of the natural structure, any attitude or angle can be obtained; whether the bird is gracefully stooping to drink or

running with outstretched legs, these will, at all times, assume their proper angles and the feet will drop in their proper places. The same principle can be applied to all the smaller birds. For example, the little warbler with one foot on the top of a slanting twig and the other farther down the branch can, with this method, be produced with most gratifying results. It is far better than any of the methods which I have seen, for there is no guess work about it.

Of course, it makes little difference which method a man employs if it will bring about the end desired. But those offered in taxidermy are not always practical. For instance, Waterton advocated the principle of mounting birds without the use of wire for support, claiming that when introduced, a disagreeable stiffness and disarrangement of symmetry would follow. Theoretically this is a very beautiful idea, but practically it is a failure, and any one who has tried it will at once admit. This very zealous devotee of our art, like others, in many things was not always right but was always in earnest; and, after all, it is the man who has done and said nothing who has never made mistakes, and the writer himself does not hesitate to include his name in the list of those whom he accuses of being guilty of erroneous methods in the practice of taxidermy. He has been in the woods, has learned the way out, and expects in the future to show others.

There has been a recent discovery of a new method for attaining a more natural and life-like appearance in hawks and owls when they are to be represented in anger; at which time the feathers of the breasts, backs, and wings stand out loosely but symmetrically. The new method holds the feathers in position till dry, and it makes a more lasting piece of work than does the old way of simply supporting the feathers with cardboard until firmly set and afterwards left to the natural qualities of the skin for their reten-

tion. The method will wonderfully assist the close observer of these characteristic birds to imitate their nature in this mood to a nicety.

What failures long-necked birds have been in taxidermy! Think of the flat, slender necks of beautiful herons being distorted into round, club-shaped columns, resting on the shoulders of once graceful birds—think of the uneven curves and loss of symmetry in the necks of mounted swans and you will not wonder that our art has not been regarded more than it is. It is with some degree of gratification that I here record the most important invention in taxidermy, so far as attaining perfection in long-necked birds is concerned. It is an artificial means of reproducing every curve and "kink" in the necks of all these birds from the size of the least bittern to that of the flamingo, swan, and ostrich. It is the invention of an eminent German taxidermist, and to those following the art as a profession the knowledge of this alone is worth a small fortune. With this and the new method for mounting long-legged birds applied to mounted specimens, these slender birds can be imitated as we find them in life; stately, dignified, and graceful.

There has recently been designed a new method of modeling the smaller mammals, like the fox, raccoon, mink, weasel, squirrel and others, which is a great improvement over the old methods of soft, fibrous filling, and a French taxidermist has devised some new and improved "wrinkles" in the "dermoplastick" method of modeling all the large animals; deer, elk, horse and elephant. No doubt every taxidermist has some "new wrinkle" which he holds secret and which if made known, would be of permanent benefit to our art.

With these few observations I will bring my hasty sketch to a close, and while I have but hinted at these things I trust that the real effect will be to put new life in some original genius, and that by his powers, in the future, we will have productions in taxidermy that will call forth the admiration of all who see them. The field is new, although it has some well beaten, and in fact worn out paths; but on every side there are flowers for those who can pluck them.

The St. Nicholas Hand Book of the Agassiz Association will be sent at a premium with The Hoosier Naturalist, provided four cents extra accompanies your order, to pay postage and packing.

## Winter Birds.

*E. L. Brown.*

For The Hoosier Naturalist.

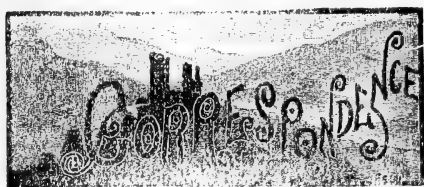
Now that winter is here and all the "transients" of the feathered tribe have vanished leaving only the memory of their ways, all notes, and each circumstance and detail of their habits and peculiarities becomes vastly interesting, and we begin to anticipate with pleasure their return next season.

But the summer residents have not *all* gone, as usual, a *few* individuals have been deserted by the main body of migrants, and still remain. Nov. 28, I saw a kingfisher, and a few days later I saw him again, flying over the half-frozen lake and making the solitudes echo with his startling screams.

On Dec. 3, I was surprised to hear the piping notes of a golden-crested kinglet. He was in company with a pair of white-bellied nuthatches and kept close to his friends, working busily searching the tips of the branches like a chickadee.

As I was passing through a brushy ravine on Dec. 10, the loud chipping of a robin made it seem almost like spring, but as soon as I came out of the shelter of the hills the cold wind made me remember that "one robin don't make a summer," by any means. Dec. 16, I saw a red-wing blackbird alone in the marsh. Dec. 20, I received a coot which had been caught in an open place in the lake. It did not appear to have been wounded, but was rather poor. American goldfinches are still here and if the weather is as moderate all winter as it has been, they will probably remain with us.

A few of the occasional winter visitants have made their appearance and I hope to see more of them soon. The only Northern waxwings I have yet seen, were observed Nov. 27, about a dozen of them, feeding on the berries of the red cedars, in the cemetery. They have been seen several times since in different places, but I am afraid they will not find sufficient attraction here to induce them to remain. Hunting, Dec. 6, I discovered four evening grossbeaks and shot them all; two were in the fine plumage of the adult and two were younger. Saw a pair of bald eagles on Dec. 13. Have not yet seen pine grossbeak, crossbill, white snowbird, or red poll linnet. When they arrive they will immediately report to The Hoosier Naturalist.



English sparrows froze to death all over the country last week.—*Sandwich*, (Ill.) *Free Press*:

EDITOR H. N.,—I was much interested in the article about a mermaid in the Nov. issue of H. N., as a similar creature was on exhibition in Los Angeles a year or so ago. I did not see this "so called mermaid," but a friend who was in the city at the time, gave me a description of it which corresponded exactly with the description in H. N. Being much interested he examined it very closely but could detect no fraud in its make up.

Yours truly,

E. M. Haight.

Riverside, Cal.

Editor of H. N., Dear Sir;—Last Friday and Saturday (Jan. 8th & 9th) were two of the coldest days the people in this section have experienced in a number of years. The mercury sank to 15° above zero, when it was well protected from the wind. Had it been exposed to the wind, it doubtless would have fallen as low as zero or perhaps below. Although this is not very cold for some places it is exceedingly cold for this latitude (the same as that of North Carolina).

We found numbers of birds frozen to death. Among them were mocking birds, boat-tailed grackles, killdeers, and others. One of the mocking birds had its wings frozen as if in the act of flying. A green winged teal was also captured same day, it being unable to fly. As we have never known of birds freezing to death before would like to hear from other collectors on the subject.

Very truly,

R. E. Rachford & Son.

Grigsby's Bluff, Tex. Per J. H. Rachford.

## Mermaids.

G. Dallas Lind.

I have a word to say on the "mermaid" referred to in the Nov. H. N. The belief in mermaids is a very ancient and widespread one. The origin of such a belief was, no doubt, in the close resemblance seals and walruses bear to the human form when seen at a distance. Columbus thought he saw mermaids in the sea. It was either his imagination, or the illusion produced by some marine birds, or other animals at a distance.

Knowing the credulity of people, ingenious showmen and others have attempted to manufacture these creatures for exhibition. P. T. Barnum for some time advertised and exhibited what was purported to be a stuffed mermaid. The fraud was discovered after a time. It was only the head and part of the body of a monkey neatly joined to the tail of a fish.

Marco Polo the great Venetian traveler of the middle ages, tells us in his writings how the belief in pigmies was kept up. He says:—"It should be known that what is reported respecting the dried bodies of diminutive human creatures, or pigmies, brought from India, is an idle tale, such pretended men being manufactured in this island, in the following manner: The country produces a species of monkey of a tolerable size, and having a countenance resembling that of a man. Those persons who make it their business to catch them, shave off the hair, leaving it only about the chin and those other parts where it grows naturally on the human body. They then dry and preserve them with camphor and other drugs; and having prepared them in such a mode that they have exactly the appearance of little men. They put them into wooden boxes and sell them to trading people who carry them to all parts of the world."

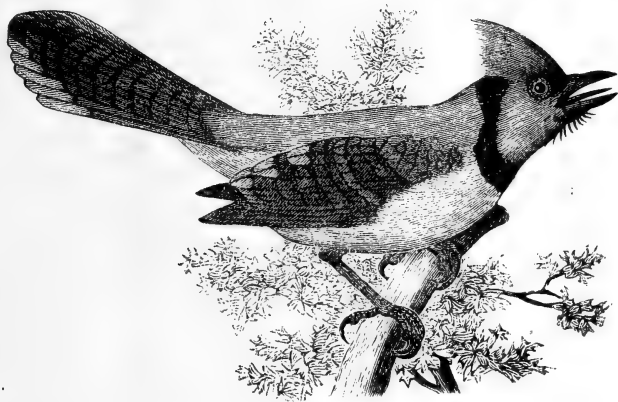
Could not the specimen in possession of Mr. Reynolds have been prepared by some ingenious Japanese? Is it possible to deceive a *Naturalist* with such things? Not a few scientific men were "taken in" by the "Cardiff Giant," which turned out to have been chiseled out in a barn in Chicago, shipped to New York state and buried. I thought there were no scientific men living, who had any doubt about the mythological nature of the mermaid stories.



# THE HOOSIER NATURALIST.

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## The Blue Jay.

*Cyanocitta cristata.* (Linn.)

U. S. Bulletin No. 26, from which the above cut was copied, says it is "a resident all the year, and abundant, especially in the autumn and winter, when it is partially gregarious." The same might be said of it here.

A friend from Sandwich, Ills., in *Free Press* says:—"A blue jay came into our neighborhood last spring. He had been there off and on through the winter, and when spring came he brought his wife, for he was a married jay, and they laid claim to a quarter section of one of the trees in the front yard and commenced house building. They were not the most agreeable of neighbors, for they got up very early and were not satisfied to go to work, but must go to talking in a loud

voice and wake up the robins and cat birds and thrushes, and then there was no more sleeping to be done around there. The jays screamed and yelled at each other, the cat birds tried to frighten all the rest by making believe that pussy was in the tree close by them, while the robins, the thrushes, and the orioles, were foolish enough to go to singing at that unseasonable hour, and one might as well try to sleep in somebody's tin shop. For all this we rather liked that jay. He was a good looking fellow and he evidently knew it just as well as if we had spoken the jay dialect and told him so. After they had their house built and Mrs. Jay had fixed everything to her liking, and she was a wonderfully fussy and particular body, she filled that nest with eggs just as fast as she could, and took to setting upon them pretty much all the time, day and night. Then you should have

seen him perform. He did not air his beauty half so much as before, but at any hour if you chanced to look up you would see him keeping watch of that nest until you would wonder when he took time for eating, and woe be to the bird, big or little, that by accident or from curiosity alighted near the spot he was guarding. He was a fighting bird, and this was a challenge which he took up instantly, and with a shriek like a mad, bad bird and a dash like a little blue piece of a cyclone, he showed that he proposed to hold the ground which he had preempted and built upon, in spite of claim jumpers or land commissioners. After a few days there were some baby birds there and then he came out in a new character. He was the father of a family and a busier father you never saw. He was here, there and everywhere, wherever a bit could be found which the babies or their mother could eat, and whenever she went to get a drink, he would hover around as anxious and awkward as ever a human father was with his first baby. The days ran on and the little ones came off from the nest, boy birds and girl birds, all dressed just alike with their bright blue polonaise and their light blue trowsers, and for days the father and mother gave their whole time to feeding and watering the awkward little things and giving them lessons in flying. As the summer passed and the young ones got so as to take care of themselves, the father bird got cross and you could hear him scold and fret as if he was trying to drive the half grown children away from their mother, and he must have succeeded, for after a while only the two were to be seen and then you would have thought him a young bird again, for in spite of his coarse and harsh voice, he said more soft things of that mate of his than you could whisper in a week. They went together to the garden and examined the sweet corn, ear by ear, they fought with the neighbors' hens for the waste that was thrown out from the slop pail, and then went together to the water trough and in every way showed all the affection which a newly married pair of birds could show. They staid with us till after the snow came, but since that became deep it has been pretty hard work for them to find enough to eat and so they have gone away somewhere. We shall expect them back again and if you want a source of constant amusement through the summer, coax a pair to nest in a tree close by your house and watch them.

### Birds of New Mexico.

*Charles. H. Marsh, Silver City, N. M.*

With the advent of September a marked change takes place in the bird life of this section of New Mexico. Many of the summer residents, their domestic duties having been discharged and the younger members of their families having been duly reared, instructed and sent forth into the world to care for themselves, are preparing for the journey to their Southern winter homes; others that spend the winter here, gather themselves together into flocks for mutual protection and social intercourse, and for a time their numbers increase by the throngs of migrants from their breeding places in the far North and the higher mountain ranges of this Territory.

Of the former the mourning doves are the most abundant. Immense flocks may be seen about the water holes and feeding grounds, but by the middle of the month the greater part of them have departed; the old birds leaving first, followed a little later by the young, while a few stragglers remain till October.

In the neighborhood of cultivated fields and among the scattered groves of scrub oaks and junipers, the Cassin's kingbird and Say's pewee abound, and associated with them in the latter place may be found the Western wood pewee, but by the end of the month these have disappeared, with the exception of a few of the Say's pewees, which I am inclined to number among our winter residents, as a few remained in this neighborhood all of last winter, though it was an unusually severe one for this section, and there was scarcely a day that I did not see one or more of them perched upon the barbed fence near my house. What they subsisted on during several storms of a weeks duration I am at a loss to understand, but in pleasant weather there was quite an abundance of insect life.

Sept. 4, a noisy flock of kingbirds passed over my head as I was collecting in a grove of junipers, and a shot revealed the fact that they were the Western kingbird on their way south from their more northern haunts; for though I have occasionally found them here earlier in the season, they are by no means as abundant as they are in the northern part of the Territory where they are numbered by the hundreds in favorable localities.

*To be continued.*

## Maine Notes.\*

Geo. H. Berry.

No. 7. American Robin. (*Merula migratoria*). This is the most common bird in Maine. Slate brown, back and wings black, head and breast red. They nest anywhere where most convenient, in trees, sheds, finest of houses, and in one instance I found a nest in a pile of stove-wood. The nest is made of mud and grass, lined with fine grasses. The eggs are bluish green in color and measure 1.16x.80. Sets average five, although I have found two nests containing six each. In July, 1885, I found a set in which were two eggs that were spotted with brown specks. I do not know as I ever heard of a like instance, as the eggs are commonly unspotted. They nest in May and June, and as I have found nests as late as August 9th, I am of the opinion that they sometimes raise two sets of young in a season. Found one set in 1885, measuring 1.22x.83.

No. 12. Catbird, (*Galoscoptes carolinensis*). The catbird is of a uniform bluish slate color, a little darker on head and wings. It is a common bird, and one of the worst enemies with which the small fruit culturist has to contend. You can scare a robin or a cedar bird but a catbird never. Fruit, insects, eggs of other birds, nothing comes amiss to it, but all are considered as food. It makes a bulky nest of sticks, leaves, etc., invariably lining it with small roots and laying five eggs of a dark green color, unspotted, measuring .96x.69, and with but slight variation. In 1885 one nested in a lilac bush not over four feet from my window and I made a study of her. She laid her complement of five eggs and both birds took their turn in setting. When the young were hatched they fed them on insects, berries, and seeds, and it seemed to me as if they would eat almost anything. They are not quarrelsome, as directly over her nest some four feet a summer yellow bird built her nest and reared her young. They nest in the latter part of May and

June.

No. 13. Brown Thrasher, (*Harporynchus rufus*). The brown thrasher is rare in this region. I never found but one nest and that was in '83. The nest was on the ground in a clump of scrub birch. It consisted of a slight hollow lined with grass. There were five eggs, greenish white in color, and so thickly covered with rusty brown spots as to almost conceal the ground color. The bird is a little larger than a robin—longer; reddish brown in color, with a very long tail and grey breast dotted with arrow shaped brown spots. The eggs measure 1.10x.79 and are laid in May. A common name for this bird, among the farmers, is plan-ting bird, as it nests about that time.

No. 22. Bluebird, (*Sialia sialis*). The bluebird is one of the earliest spring arrivals and most common bird. It is of a light blue on head, back, and wings; with a breast nearly the color of that of a robin. Female duller. Nests in holes in trees, fence posts, and bird boxes. Sets average five, although I have found two nests containing six each. They range from light blue to the color of the Wilson thrush. Those in my collection range from .82x.63 to .78x.60. They nest in May and June. The cowbird occasionally lays in the nest of the bluebird.

No. 41. Black-capped Chickadee, (*Parus atricapillus*). Our most common winter resident. They nest in dead trees, stumps, posts, etc., and lay from five to eight eggs. The nests were composed of willow and bark down in every case that I have seen, though Mr Pitts found a nest in '84 composed almost entirely of hair from the skunk. The bird is of a bluish grey with black cap on head, black bars on wings, and black tail. The eggs are pure white when blown, rosy before, and spotted with dots of rich red brown, chiefly around the larger end, in some specimens forming a distinct ring. Size .58x.46. Nest in May.

\*We have waited a reasonable length of time for the illustrations for this article; we regret that we are compelled to go to press without them.—[Ed.]

**Ruby-throated Humming Bird.***Trochilus colubris.*

The Ruby-throated Humming birds have been very abundant in the northern part of Indiana this summer (Aug. 1885). We presume they are abundant every summer but we have noticed them especially this season. The beautiful little creatures flit from flower to flower so quickly as to be but indistinctly visible. The male bird with its metallic, ruby-red throat, is especially attractive, and a more delicate feathered pet could not be obtained. It has been our good fortune to possess at various times, live hummers. They have generally been male birds which we have kept from one to three months, when they died or were liberated.

They are easily tamed and soon become very familiar. Pet humming birds are great novelties with the majority and we have always delighted in having them. Our first one was tamed accidentally. It had been captured by a friend and brought in a glass jar. We were very busy at that time and could not take care of the little fellow, so tried to feed it sweetened water to keep it alive if possible for a few days. A pencil was dipped in the water and then rubbed against his bill to which a drop soon clung. In a few minutes he learned where his dinner came from and was anxious for more. The next day he was given the liberty of the room and immediately perched himself on a maderia vine, the pencil was supplied with its drop of sweetened water, the bird permitted our approach and drank it all. This was repeated several times with the same result, finally the pencil was held a few inches from him and almost instantly he was hovering below it sipping the sweet. After that there was no difficulty, he would fly from his perch on the maderia to any part of the room when the pencil was held up. He got hungry every few minutes and would emit, at such times, a shrill little squeak. In a few days he would perch readily on our finger and eye

us mischievously for a moment, then sip his dinner and dart away to the maderia. We kept him thus for eight long weeks and had become deeply attached to him, when, one morning, the window being down, he flew out and never returned.

We felt very sorry, but presume he was delighted to regain his liberty and get a change of diet, for sweetened water, day after day, must have been very monotonous. The next season another one was brought us which we tamed in the same manner. He slept for a while on a large fern we had in the corner of our room, but one morning the little fellow was gone; he had been carried off bodily by the mice. We have had several since then but they were all short lived, owing we suppose to a lack of insect food.

*The London Lancet on***The English Sparrow.**

Sparrows are found to do more harm than snakes or tigers. Nature's thieves and vagabonds they are. This is the verdict of everyone who investigates the matter. They drive away birds which do more good and little, if any, harm. For every noxious insect they destroy they consume more corn than one likes to calculate. No amount of sensationalism can find any countervailing advantage. The careful and long-continued experiments of Col. Russell in Essex, show that sparrows do unmitigated mischief, and the experience of our colonies and of the Americans confirms the facts beyond cavil. There is really nothing to be said for the sparrow. He carries destruction with him wherever he goes, and leaves devastation to mark his increase. From every point of view he must be looked at as the enemy of man. Either he must give way to us or we to him, and just now his power is such that he seems in a fair way to become here, as he has already become in Australia, a factor in politics.

# OOLOGY.

## Twenty Years Ago.

By D. H. E.

A glance backward over the oological field may not prove uninteresting to your readers, and some of the young oologists will doubtless be surprised at the ways and means of the pioneers in their favorite science.

Let us go back twenty years; at that time there were many egg collectors, as they were called. The term oologist not being a familiar one to the writer's ears nor to those of his comrades.

In those days we were not confined to the comparatively few species which occupy the attention of the collector of to-day. For instance, the Song Sparrow of to-day, gave us several different species. If the nest was found in a tree, of course we had a Tree Sparrow; if on the ground, a Ground Sparrow; in a field, a Field Sparrow; bush, Bush Sparrow. If the nest of a Baltimore Oriole was found in an orchard, it was an Orchard Oriole, and so on.

There were sharpeners among us too, who increased their stock by talking large and using their artistic ability to decorate some of the plain eggs, as doves, and passing them off as specimens of some rare bird.

Three or four of us would start on a tramp some Wednesday or Saturday afternoon, each with one or two collar boxes half full of Indian meal to hold our finds.

Through the fields we went, looking in each bush and tree, and suddenly, "I've found one," from some member of the party, would send all the rest rushing to see *what* he had found, and calling out, "how many?" "what is it?" "give me one."

After returning home at night, with what eggs had not been broken, the grand blowing act was performed. No drills in those days, my boys; a needle or large pin was good enough for us. A hole was punched in each end, and the lips applied to the smaller, then a good blow emptied the shell. If the egg contained an em-

bryo, it was either broken in attempting to empty it, or laid away and allowed to dry up.

No collector kept sets, one, or at most two, of each species was considered enough, and no thought was taken as to the locality, situation of nest, etc., etc., facts which are considered, and well so, indispensable in these days.

The next step in advance, was when it was decided that end holes spoiled the looks of the egg, and prevented accurate measurements from being made. Then none but specimens blown through two *side* holes were considered as first-class, and attention was paid to facts about the nesting. It was not enough to establish the identity of an egg, that a bird had been seen in the same county. In fact, what had been followed mostly by boys, as a pastime, began to be treated as a science, and to be studied intelligently. It was not enough to have 100 or 200 varieties or more, but each one must be accompanied with data to establish its right to the name given it.

Who first advocated blowing through one hole, the writer knoweth not, but he should receive credit for having invented a neat and safe way of preparing oological specimens.

In the old days the eggs were generally kept in some drawer which had been parted, and the apartments partly filled with meal or sawdust. Now, we open a drawer and see a series of neat, paste-board trays, each with its set of eggs and label. Another drawer shows us the nests with eggs, all in boxes, so made that the structure of the nest may be seen without taking it from its place. Formerly, the name of the egg was written on the shell or a printed label pasted on. Now, a properly prepared egg shows nothing but the number corresponding to the Smithsonian Check List, and the set mark; and these are in pencil, and as small as possible. But I think I have said enough to show that students in this science have made advances as well as those in other fields.

### Nesting of the Blue-winged Yellow Warbler.

*Helminthophaga pinus.*

The Blue-winged Yellow Warbler is not a common resident in this section of Eastern Pennsylvania, but, as with the Worm Eating and Kentucky warblers, the collector occasionally has the good fortune to encounter a pair of them nesting in some secluded locality, and they are always considered a rich prize; repaying him for many an unsuccessful search.

It has been my good fortune to find three nests of the above species, two containing young, the third and last, with five fresh eggs. In every instance they were situated, or rather embedded, in a depression of the ground, in a thicket or clearing near the edge of a tract of timber.

One of the nests was located in a little opening in the woods, in which long grass had grown up, and the nest was securely hidden among this.

The nest is of a peculiar bell shape, much larger at top than bottom.

The interior is lined with fine roots and grasses; the outside being composed of dry leaves loosely put together.

The birds are very restless and uneasy at the approach of an intruder and often make it comparatively easy to find the nest.

The eggs, from four to six in number, are white, thinly spotted at the greater end with fine dots of black and brown, and are proportionally longer than those of some other species.—*Thos. H. Jaedson, West Chester, Penna.*

### Two Species of Raptores Using The Same Nest.

The fondness that birds of the *Raptores* family have for their old nests is a well known fact, and also their habit of return-

ing to them year after year; even in many instances, when deprived of their eggs. That the same nest should be used by two kinds of birds of prey each year is a new fact, however. Such, nevertheless, is the case with a very large nest of sticks, lined with a few feathers, and placed in the notch of a post-oak, about forty-five feet from the ground, in Lee County, Texas. This nest is used every year, first, by the Great Horned Owl (*Bubo Virginianus*.) and afterwards by the Red-tailed Hawk, (*Buteo borealis*.) The young owls leave the nest before the hawk is ready to occupy it. It is not known whether the owl or the hawk originally built it, though both of them probably add to it each year, which would account for its large size.—*Ornithologist and Oologist.*

Aug. 10th I observed a Black-billed Cuckoo fly from a thorn-apple bush. On examining the bush, discovered a nest made of hair and straw, containing two greenish blue eggs. Found a nest, Aug. 28th containing two young.—*Mrs Fernakes, Milwaukee, Wis.*

When eggs are to be shipped by mail or express they should never be packed in any thing but wooden or tin boxes. Each egg should be wrapped in cotton and bound tightly with thread and then wrapped in tissue paper. Place them in layers in the box with bits of cotton between each egg. The bottom, sides, and end, of the box are often lined with sheet cotton which is still better protection. *Davie's Key.*

Wood Ibis eggs are chalky white, frequently spotted with pale reddish-brown. Those of the White Ibis, are ashy-blue, spotted and blotched with various shades of reddish andumber brown. The eggs of the Scarlet Ibis, are bluish, covered with a white calcareous deposit, and those of the Glossy, are greenish blue.

# ORNITHOLOGY.

## Roseate Spoonbill.

*Platalea ajaja.*

The Roseate Spoonbill recently received from R. E. Rachford & Son, is a singular bird. They were once abundant throughout Florida, and are still common in wilder sections of the southern and western portions of the State, where they are known as Pink Curlews. In habits these birds greatly resemble the White Ibis, but unlike this species, breeds in the interior, nesting on islands in the almost impenetrable morasses. Their domiciles, like all members of this order, are composed of sticks, loosely arranged, and are placed in trees, but at no great elevation from the ground. The eggs are three or four\* in number, oval in form, ashy white in color, spotted and blotched sparsely with pale, reddish brown. Dimensions from 1.70 x 2.50 to 1.75 x 2.00. The adult Spoonbill is a beautiful bird, being rosy-red throughout, with a tuft of recurved feathers on the breast or lower neck; band on wing, upper and lower tail coverts, rich carmine. There is a brownish orange spot on side of neck, and the tail is of the same color. The naked skin of head is bright green in color, with space around eye and gular sac (skin beneath lower mandible) bright orange. The young, even when two years old, are not as brightly colored, but the head is covered with feathers quite to the bill. Thus as a rule, the older the bird the less feathers will it have on the neck and head.

But the most singular thing about the Roseate Spoonbill is its oddly formed bill. This is greatly flattened and considerably expanded laterally at the extremity, thus greatly resembling a spoon, whence the name of the bird. In spite of this peculiarity, the sternal structure and other osteological characters, show

clearly that it is an Ibis with a modified bill.

The Roseate Spoonbill is a shy bird in Florida, inhabiting as it does the vast mud flats of the west coast and the keys where it is difficult to approach. The birds are quite difficult to shoot, and although they have been systematically persecuted for many years on account of the beauty of their plumage, this extreme shyness, which they early acquire, has prevented their extermination.

In former years, when they were not so much hunted in Florida, they were much less suspicious, and even now, in remote localities, the Roseate Spoonbill are not shy birds. Thus on Andros Island, Bahamas, I found them as unsuspicious as heron, allowing me to approach within gun shot of them, even when I was in open sight. (C. J. Maynard in *The Naturalist in Florida*.)

This morning (Feb. 13,) our young oological friend, Tom Carver, saw a real, genuine Catbird. Tom says there is no mistake about it, as he was but a few feet from the saucy little fellow, who sang as merrily as though Spring was really here.

Blue Jays, Downy Woodpeckers, and the abominable English Sparrows, have been abundant all the winter.

Aug. 21, I had a white Robin sent to me. It had the red breast, but all the other parts were white, tinged with yellow above.—Chas. L. Phillips, *Ornithologist and Oologist*.

The "Standard Natural History", in six volumes, is, as its name indicates, Standard. It is sold only by subscription, at six, seven, eight, and ten dollars per volume, according to quality of binding.

A prospectus will be sent, on request, to all who think they can afford the work. Subscriptions received at this office.

\*Two to three, in Davie's Check List.

# ENTOMOLOGY.

## Practical Hints on Collecting

### —Coleoptera.—

(Concluded.)

Some leaves should be placed on the bottom of it to offer hiding places and to prevent the captured insects from making war against each other. Old cheese is said to be a good bait.

Another way of baiting is "sugaring." A mixture of sour beer and molasses in equal parts flavored with a little brandy, is an excellent bait applied to boards, stumps or trunks of trees; it will attract, especially in the evening, besides numbers of Lepidoptera, also many Coleoptera, Cerambycidae, Elateridae and others.

Heaps of weeds, if left to rot will attract numbers of insects which can be captured by shifting the weeds from time to time.

Fungi may be made use of in the same manner to great advantage.

Blowing tobacco smoke into the crevices of wood, fence posts, etc., will be effective in driving out the insects hiding therein.

The last and one of the best traps to be described is the light trap which may be easily constructed in the following way.—

A lantern, combined with a reflector, is suspended outside, on the wall of a house, or on a post, and directly under it is placed a funnel, by at least several inches larger in diameter than the lantern, the tube of the funnel reaching into a bottle partly filled with diluted alcohol. This trap will become the more effective the more isolated the locality.

A lamp placed on a table before an open window will also answer the purpose.

Though living in the city I captured quite a number of insects in this manner, and in the country it has always proved very successful.

In concluding this article I hope that other practical collectors will take up the subject and give us their own experience on the habits of coleoptera and their capture. We do not need to visit distant places in order to get new additions to our cabinets, as much can be done yet by thoroughly exploring our own localities. Even one so much frequented by collectors as that around New York city has yielded in the last years, especially by use of the sieve, a number of new species of *Staphilinidae* and other families.—H. SCHMETTER. *Bulletin of Brooklyn Entomological Society.*

### The Story of a Mosquito.

The little fish-like animals that swim about in vessels of stagnant water, and devour the living atoms that swarm in the same situation, soon come to maturity, cast their skins, and take another form, wherein they remain rolled up like a ball, and either float at the surface of the water for the purpose of breathing through the two funnel-shaped tubes on the top of their backs, or, if disturbed, suddenly uncurl their bodies, and whirl over and over from one side of the vessel to the other. In the course of a few days these little water tumblers are ready for another transformation. The skin splits on the back between the breathing tubes, the head, body, and limbs of a mosquito suddenly burst from the opening, the slender legs rest on the empty skin till the latter fills with water and sinks, when the insect abandons its native element, spreads its tiny wings, and flies away piping its war note, and thirsting for the blood which its natural weapons enable it to draw from its unlucky victims.

Who would not ask for demonstration, when told that a gnat's wing, in its ordinary flight, beats many hundred times in a second; or that there exists animated and regularly organized beings, many thousands of whose bodies laid close together would not extend an inch?



# The Hoosier Naturalist,

Published Monthly at 75 cents, a year.

R. B. TROUSLOT,  
EDITOR AND PUBLISHER.

*Items of interest solicited from young  
Naturalists or Collectors.*

*Terms of Advertising made known on  
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When this is crossed, your subscription  
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VALPARAISO, FEBRUARY, 1886.

## OOLOGIST'S NOTICE.

Oliver Davie informs us that on the morning of January 25, the plates of illustrations for his new "Key" were destroyed by fire at the Arch street conflagration, in Philadelphia.

"It cuts me terribly, to think I was compelled to announce to you, as I have to the other dealers, the destruction of my plates. My venerable old friend Jasper has others almost finished and I can assure you no time will be lost other than to have the plates made."

Those who have placed orders with us will receive them in due time. All orders are recorded as they come and will be filled in like manner.

We are short of December numbers of the H. N. Any one who will send this number will receive a January or February number in exchange, or their subscription will be extended. Those that have an extra copy will greatly oblige us and numerous new subscribers who wish them.

We will make no more promises about the H. N. being on time. We will do our best, however, and it will appear as prompt as a rush of other work will permit.

## A Little Chief-d'oeuvre.

Breton Riviere's charming picture "Sympathy" has been engraved as a premium for Godeys' Lady's Book for 1886, and is one of the most desirable inducements ever offered by that or any other magazine. The plate is an unusually fine one, very faithfully produced, and of a size that makes it acceptable either for the portfolio or for framing. "Sympathy" represents a fair-haired little girl sitting on a stairway, in deep distress, her little chin resting dejectedly on her hands, while a comical old dog presses close to her side, poking his nose over her shoulder, and saying as distinctly as any dog could say, "I'm awfully sorry for you." The picture is wonderfully expressive and has had an immense sale in Europe.

OUR old friend, Prof. Frank Webster, of Purdue, has been ordered to Louisiana, by the government, to investigate a small black fly that infests the bottom-lands along the Mississippi. This fly is unknown to science, and is quite poisonous, having inflicted great damage to live stock. Mr. Webster left last Monday, February 15, and will be absent probably two months.

WE have filled many orders for books the past month, and are ready and willing to fill hundreds of others. Remember that every order for books to the amount of \$1.50 or more, entitles you, or your friend to the Hoosier Naturalist for one year.

Friend Davie says "the 'Key' will be ready for delivery sometime during March, and further, I will send you the *very first* copies out." So cheer up, brother collectors. A little while longer and you will be comforted by reading the new "Key."

WE extend our thanks to John Bryson, now of Louisville, Ky., for "The Geological Formation of Long Island, N. Y." It contains 18 pages, with a fine large map of the Island.

RANDOM NOTES for January has failed to appear. Why?

ANOTHER Spring reminder, a robin, appeared among our snowflakes last week. Bluebirds are next in order.

THROUGH an oversight on our part we neglected to thank James Whitcomb Riley, the "Hoosier Poet," for his kindness in copying and allowing us to publish his "Treat-ode." Mr. Riley is a poet of which all Hoosierdom is justly proud.

WE use care in the packing of all goods, but cannot be responsible if anything is lost when sent by mail. When books are ordered thus, it might be well to enclose an additional ten cents, and we can then register them and their delivery will be assured.

FABULOUS Animals, by Prof. G. Dallas Lind; To Pack Eggs for Transportation, by R. E. Rachford & Son; a Two-Headed Snake, by Prof. F. F. Roose; Bellinus Danae, by H. D. Hill; and a short article on ants, by C. M. Montgomery, have been received. Please accept our thanks, they will appear soon.

OUR friends should keep a close lookout for spring birds and note the exact arrival of each; whether it comes alone, with its mate, or in flocks. As the weather has much to do with the arrival of these birds, its state should also be recorded. Furthermore, any information relative to bird migration, will be thankfully received at this office.

In consequence of the many inquiries that Prof. Oliver Davie has already received with reference to his new work on taxidermy, we will say in his behalf, that Dr. Jasper is working on the illustrations for this work, and we are promised something grand, though just when the work will be completed, at present, is not known. As soon as possible we will announce full particulars through these

columns.

R. E. RACHFORD & SON, of Grigsby's Bluff, Texas, writes as follows: Your favor of the 5th at hand, also the Hoosier Naturalist, which, we must say, is excellently gotten up. Our "ad" in your paper pays us well. We would not be without it. Please make it read, however, that we guarantee safe delivery. Thanking you for your kind editorial mention, which we shall strive to merit, we are,

Very truly,

R. E. RACHFORD & SON.

It makes no difference what book it is you want, if it is printed by any respectable publisher, it can be obtained for you, from this office, at the shortest notice, and at publisher's lowest price. Should we not have the book or books desired, on our own shelves, there are other similar stores in this city always willing to accommodate us. When this fails we have direct telephone communication with all the leading book concerns of Chicago. Give us a trial order.

A LETTER from C. M. McCollum, editor of the *Ornithologist*, informs us that his paper will not appear again for some months, at least. Mr. McCollum will take a respite from labor and then, probably, will complete a business course at some one of the many colleges of that character that are sprinkled over the United States. We hope the N. I. N. S. and B. I. will be favored with his presence. This school is pronounced by every one ever having attended, to be the best in the U. S. Brother McCollum, come to Valparaiso, we would like to form your acquaintance.

ALL who would like to act as agents for the Hoosier Naturalist on a *cash* basis, please inform us. We allow a *liberal commission* and with but a very little push and energy on your part, you could earn *considerable* spending money. You do not know what can be done in your

neighborhood until you *try*. Let us hear from you at least and we will send you by return mail, our very best terms, which will be sure to astonish you, and we trust will rouse your latent energies to such a degree that *splendid* will be the results of your efforts. Address all inquiries plainly to the Hoosier Naturalist, Valparaiso, Ind.

As yet we have said but little about our fifty cent book premiums. A few words here will not be out of place. A *great* publishing house will print nothing but what is first-class in every respect. The books above referred to, twenty-nine in number, are all published by George Rutledge & Sons, a firm known almost the world over. We cannot speak of the entire twenty-nine; but six of them will be noticed this time. The others, will, however, be found fully as excellent on the subjects of which they treat as these six.

The first three, Common Objects of the Microscope, Sea-Shore and Country, are by the Rev. J. G. Wood, a well-known popular natural historian. Common Objects of the Sea-Shore has fourteen full-page plates with numerous other engravings.

The text which covers one-hundred and twenty-eight pages is restricted to those objects which every visitor to the sea-side is sure to find on every coast.

Mr. Woods' book on the country has about the same number of pages and illustrations as the preceding one, and, like it, is not intended for scientific readers, but simply as a guide to those who are desirous of learning something of natural objects, scientific language having been studiously avoided, and scientific names given only in cases where no popular name could be found.

The twelve plates of illustrations in Common Objects of the Country, are colored. This little work comes appropriately last of the three. It was written simply as an elementary hand-book upon

the microscope and its practical application to the study of nature. It treats, however, in a simple manner, of those wonderful structures, whether animal, vegetable or mineral, which are found so plentiful in our fields, woods, streams, shores and gardens.

British Ferns, by Thomas Moore, is also embellished with colored engravings. This book is for the learner and describes only a few of the more striking ferns.

British Butterflies, by W. S. Coleman, is finely illustrated with sixteen full-page plates. This is really an elegant little volume and will be found sufficiently complete to supply all information needful to the young entomologist, with directions for collecting, preserving and arranging in cabinets—apparatus required, etc. The drawings are all from nature by the author, and we can find hundreds of them that resemble our own beautiful butterflies.

British Birds' Eggs and Nests, by the Rev. J. C. Atkinson, with illustrations by W. S. Coleman, is uniform with the preceding five volumes. It gives a complete and systematic list of bird's nests; an accurate and trustworthy account of the nests and nesting-sites, with full description of the eggs. It will be found of interest to all of our American oologists, whether amateur or professional.

SUBSCRIBE for the Hoosier Naturalist.

WHAT has become of A. E. Southworth & Co., of Woodstock, Ill.?

A NUMBER of new advertisements in this issue that will pay you to examine.

THE Agassiz chapter at Salt Lake City is quite enterprising. They publish Agassiz Notes which is full of interesting matter.

THE Oologist's Directory has been out of press for some time; should any of our readers care for this we would be pleased to supply them.

## TAXIDERM.Y.

It is our desire to make this department one of the leading features of our paper. Our Taxidermal friends are cordially requested to contribute.

### Absorbant Cotton.

In all books and papers on taxidermy it speaks of taking cotton along when collecting, but I have never seen absorbant cotton mentioned. Now, I think it is an excellent substance to use when the bird bleeds very badly, as it will take up the blood as fast as it flows, while common cotton will wipe it into the feathers. It is cheap, and I think it will pay you to try it. Please mention it in your valuable paper as I would like to hear from other parties who will give it a trial.

R. F. C.

Constantine, Mich.

### Was it Instinct?

While walking through a meadow one day this winter, my attention was drawn to the curious antics of a crow, who was flying around and around an apple tree as if in search of something. At last he alighted and began to walk around on the snow. In a few minutes he settled in a spot in which to commence operations and began to dig a circular hole, using his bill for both shovel and pick. After working a short time, much to my surprise, he pulled up a decayed apple. Through this he stuck his bill and flew slowly over the trees into the woods, presenting the peculiar spectacle of a crow with two heads. How did he know just where that apple lay that was to make him a meal? The snow was at least six inches deep at the time, and there was a light crust, which had not been broken in that vicinity before his appearance.

*Aescalon columbarius.*

### Red-shouldered Blackbird.

*Agelaius phoeniceus*

Between the months of April and November, the swamp blackbird is a common resident with us, preferring the swamps and the wet lowlands to rear its progeny. It begins to lay its eggs about April 15. The red-wing, as it is sometimes called, selects bushes, generally willows, or bogs, covered with tussock grass, close by creeks or other bodies of water. The nests when placed in bushes are generally suspended from the limbs after the manner of the oriole; the nests of these two species are very much alike, except the nest of the oriole is suspended from a more elevated part of the tree. The number of eggs laid are from four to six, more commonly three, and four. They are of a bluish color, marbled, blotched, with marks of dark and light purple, and almost black about the larger end; size 1x75. A large number of the eggs are devoured by the black water snake, which generally live in or near the same locality. The young birds are sometimes eaten by these snakes before they are able to leave the nest. The stomach of this blackbird generally contains quantities of insects and worms. Its arrival last year was first noted April 1, and became common April 7. The red color on the wings of the male is much admired by every lover of beauty, and for this, many are destroyed for millinery purposes.

Many birds will not betray their nests until the intruder almost steps on it; not so with the blackbird. Should you come within five or six rods of the nest the male will fly in circles above your head, uttering his plaintive cry, soon the female will join her companion and the collector will have plenty of noise. The nearer you approach in the direction of the nest the more vociferous they become, and the reverse as you stray away. The collector can hardly miss finding the nest; as a general thing they breed in communities.

B. F. H.

Phoenix, N. Y.

**Bald Eagle.***Haliaeetus leucocephalus.*

The bald eagle, noted as the emblem of liberty, is found more or less distributed over North America. The adult is of a dark brown color with white head and tail; the quills black; feet yellow; bill and eyes yellow; extent of wings five and one-half feet to seven feet, very seldom more. From tip of bill to tip of tail varying but a little from three feet in all the specimens that have come under my observation. Three years are required for the perfection of the white head and tail of this species, wherein lies much of their beauty. Black eagles, or birds of the first year, are dark in color, many of the feathers in some specimens showing fleecy white bases, but in several specimens examined supposed to have been nearly of the same age, have found a great difference in their markings. Very young birds are of a gray or sooty color. Gray eagles, or birds of the second year, are found many times to be larger than the mature birds, and at this stage are supposed by many persons who are not acquainted with their plumage, to be of a different variety. The white head and tail are matured in the third year when the bird is known by every one as the bald or white headed sea eagle. In the north they nest in trees or upon cliffs which are very hard of access. Laying in February and March, and the eggs are only obtainable at a great risk. In Florida where I have had ample opportunity of studying their habits I have found them breeding in the months of November, December and January. Here they are of family habits, several pairs nesting near each other. On Merritt's Island, at the mouth of Indian river, inside a space of three miles, I have found twelve nests occupied at one time by these birds. On December 13, 1882, I visited the first nest which I found located seventy feet from the ground in the largest pine stand-

ing within one-fourth of a mile and in the most slightly point, at the East or Bannah river side of the Island. The nest was reached by the use of heavy climbing irons and a strong withe placed around the trunk of the tree with one end in each hand, a feat easily accomplished by one after a little practice. The nest was composed of very coarse pine sticks with a lining of grass and leaves and contained two fresh eggs which were secured. December 14, two more nests were visited, one with two fresh eggs fifty-three feet from the ground. The nest was composed of coarse pine sticks, lined with finer sticks. Small fishbones were found in this nest in quantities. One with three eggs, fifty-three feet from the ground, two of the eggs being fresh and the third in an advanced stage of incubation. The birds were very shy, leaving the tree which contained the nest while we were at a distance of three hundred yards. December 15, two more nests were found, one sixty feet from ground in a very large pine, nine feet in circumference, nests as others, lined with fine grass contained two eggs, one fresh, while the other was found to be very near to time of hatching, the birds allowing us to come up to the tree before taking flight. The second nest was found to be lined with moss and feathers, sixty-five feet from ground and contained two fresh eggs. December 19, another nest was found sixty feet from ground, coarse sticks and grass, two fresh eggs much smaller than usually found. December 22, another nest eighty feet from ground in pine tree on main land near place known as Grant's farm, a deserted southern plantation, was found which contained two fresh eggs. December 24, I visited another nest, forty feet from ground in dead pine, which had the appearance of having been killed by lightning and the only nest I have ever seen in this section which was built in any tree except a living one. Found two birds in down and one egg. All were left and again visited on the 26th, when the egg

was found to have been hatched. On January 3, 1883, another nest was found but the young could be heard from the ground. Did not climb the tree. Outwardly nest had the same appearance as others. January 4, another nest was found situated in slightly pine standing alone on the edge of a swamp twenty feet from ground and contained one young bird the size of a full-grown partridge. The old birds were very shy. January 5, two more nests were found which contained two young birds each, appearing to be about a week old. All of the above noted nests were found in pine trees and in the most sightly places. The parent birds not seeming to care for concealment but rather to look for open ground. Their food consists mainly of fish and birds from the large flocks of ducks and coots which are at all times very plenty in this section. The manner in which they secure these birds is somewhat amusing. The eagles will circle in the air for hours above a flock of ducks or coots at rest on the river. At a time when one gets singled out from the body of the flock he will start downward and if the bird remains away from the others he is sure prey, but if, perchance, he should go back to the main flock the eagle will return to the air with cries of disappointment and continue to circle till he sees another single chance. The birds upon the river are aware of their danger, for no sooner does the eagle start downward than they rush together and utter their cries of alarm. It is noticeable that they will seldom ever attack other birds unless as noted above. They will rob the aspray of his expected meal, and at times will feed on carrion. Have found quail in their nests. They will occupy the same nest year after year, even if disturbed. The crows (*C. frugicorus floridanus*) are great enemies to the eagles and will rob their nests of eggs or young as opportunity affords.

JOHN B. WHEELER.

### The Golden Eagle.

*Aquila chrysaetus.*

Oak Hill, Surbiton, Surrey Eng.

A great deal of excitement and interest has lately been caused by the appearance of two of these noble birds in Kent. One of them after committing considerable havoc among the sheep was shot near Barnsgate, and was found to measure over eight feet across the wings. The other which was described as being larger, has hitherto kept out of range and is, I believe, still at liberty. Another specimen was caught in a vermin trap a short time previously. Nowadays no sooner does a rare bird make its appearance than all the sporting population turn out on the warpath and the unfortunate visitor instead of being allowed to remain and attract others of the same species, is certain to terminate its career with an ounce of lead in its body. In this case, however, the farmers doubtless had good grounds for retaliation. The golden eagle is now rarely seen across the border and in Scotland they are much more scarce than of yore. Of late years however, their numbers have rather increased, there being an understanding among the estate owners that these splendid birds should be preserved and not be subjected to that ruthless process of extermination which has befallen so many beautiful species. The golden eagle generally enjoys peace and quiet while engaged with the cares of a family, owing to the inaccessible position in which the nest is placed and the cordial hospitality afforded to the would-be visitor. The nest is usually perched upon a ledge of rock on the face of a precipice and is an immense structure five or six feet in diameter, composed of sticks and branches, lined with some softer material. The eggs are two in number, occasionally three, and are of a dirty white mottled with rusty red. The eaglets are pretty well catered for, game in abundance being provided for them by the parents; and families have been saved from starvation in times of scarcity by appropriating a share of the food brought by an eagle for its young.

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## Fabulous Animals.

NO. 1.

G. DALLAS LIND, M. D.

One of the most interesting of the fabulous, or mythical animals of the past was the unicorn. We hardly know whether to speak of the word unicorn as the name of a mythical animal, or an ancient name for an animal that has a real existence.

The Encyclopedia Americana, copyrighted in 1832 says, "According to Van Zach's examination of the accounts given, in ancient and modern times of the unicorn, the opinion of its fabulous character which has prevailed since the time of Buffon (died 1788), does not rest on sufficient grounds. In the country of the ancient Meroe (in Ethiopia) a beast of this description is found, of the size of a cow, and the form of an antelope; and the male has upon his forehead a long and straight horn."

Webster's Dictionary quotes Craig as saying "This animal is supposed to be still extant in Ethiopia, having been described by M. Ruepell as being an animal of a reddish color, equal in size to a small horse, slender as the gazelle in its shape, and furnished with a long slender, straight horn in the male, which is wanting in the female."

Pliny the Roman naturalist, says in his Natural History, "There are in India oxen with solid hoofs and a single horn; and

a wild beast called the axis which has a skin like that of a fawn, but with numerous spots on it and whiter; this animal is looked upon as sacred to Bacchus. The Orsacan Indians hunt down a kind of ape which has the body white all over; as well as a very fierce animal called the *monoceras*, which has the head of the stag, the feet of the elephant, and the tail of the boar while the rest of the body is like that of the horse; it makes a deep lowing noise and has a single black horn, which projects from the middle of the forehead, two cubits in length. The animal it is said, cannot be taken alive."

The name, *monoceras* used by Pliny is a Greek word and means one-horned. Unicorn is the Latin translation for *monoceras*. Other ancient writers describe the unicorn as being a native of India, of the size of a horse, the body white, the head red and the eyes blue. The horn was straight, its base white, the middle black and the tip red. It was so swift that no horse could overtake it. The oldest author who writes of it is Ctesias, a physician, who lived about 400 B. C. He calls it the wild ass, (*Onos agrios*). Aristotle mentions it briefly under the name of the Indian ass. He said he had never seen a solid-hoofed animal with two horns and that there are only a few which have one horn. Lobo, a Portuguese missionary in his history of Abyssinia (1659) describes the unicorn as resembling a beautiful horse and inhabiting that country.

The word translated "unicorn" in the old version of the Old Testament is translated in the new version, "wild ox." I do

not see, however, that this throws any light upon the question as to what kind of an animal the writers in the Old Testament referred to when they used the Hebrew word which has been translated unicorn. It does show that the revisers of the Bible believed that the Old Testament writers did not mean the one-horned rhinoceros (*rhinaceras unicornis*) as that is the only one-horned animal known to naturalists.

We are all familiar with the pictures of the unicorn in heraldry. As usually represented it resembles a horse more than any other animal. Before the union of the Scottish and English crowns the coat of arms of Scotland had two unicorns as supporters, and since the union the United Kingdom has a lion for the right support and a unicorn for the left.

Was the unicorn as described by the ancients merely a creature of imagination, or are these descriptions merely exaggerated accounts of some real one-horned beast? The only one-horned animal, as above spoken of, existing today is the rhinoceros, which certainly does not look very much like a horse nor an antelope. There seems to be five different animals mentioned by early writers as having horns, the Indian ass, the single horned horse, the single horned ox, the rhinoceros or unicorn and the oryx.

Marco Polo, the Venetian traveler of the middle ages describes an animal under the name of the rhinoceros as follows: "In the island of Sumatra are many wild elephants and rhinoceroses, which latter are inferior in size to the elephant, but their feet are similar. Their hide resembles that of the buffalo. In the middle of the forehead they have a single horn: but with this weapon they do not injure those whom they attack, employing only for this purpose their tongue, which is armed with long, sharp spines, and their knees or feet; their mode of attack being to trample upon the person, and then to lacerate him with the tongue. Their head is like that of a wild boar, and

they carry it low towards the ground. They take delight in muddy pools and are filthy in their habits. They are not of that description of animals which suffer themselves to be taken by maidens as our people suppose, but are quite of a contrary nature.

The latter observation doubtless has reference to a common belief of the middle ages that the unicorn could only be captured in one way and that was to send a pure virgin near its haunts. The animal would then become so tame that it would lay its head in the maiden's bosom while the hunter approached from behind and killed it. The belief that the rhinoceros tore the flesh of an enemy with its tongue was a very general one to within a modern period.

Bontius, a Dutch physician (1629) says that "if it be exasperated it will toss up a man and a horse like a fly, whom it will kill with licking, while by the roughness of its tongue it lays bare the bones."

#### Maine Notes.

GEORGE H. BERRY.

No. 51. White-bellied Nuthatch, (*Sitta carolinensis*). Tolerably common in company with the chickadee. Color much the same. The head, however, is not black, breast and belly white, longer than the chickadee. Nest in trees, stumps, etc. A nest in an apple tree contained six eggs measuring .80x.62, color a dull white blotched with dull reddish brown. These birds are called run rounds by the farmers. They nest in May and sometimes in April.

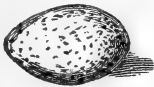
No. 74. Black and White Creeper, (*Mniotilta varia*). Tolerably common.

The bird is very near the size of the white-bellied nuthatch, black and white in color, the colors being arranged in lines running lengthwise. Two bars of white on each wing. The bird has a very bright, inquiring appearance and is constantly moving around. I found a nest in '83 in a low hemlock bush. It



was built after the manner of the warbler, of grass, etc., and lined with hair. Five eggs, size .74x.62, color creamy spotted and specked, with reddish and faint lavender, chiefly at the larger end. Two nests found near me in '85, were on the ground.

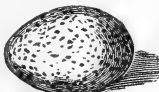
85.



.55x.48.

No. 85. Nashville Warbler. (*Helminthophaga ruficapilla*). Extremely rare. I never found a nest and only see one or two birds each season. The only nest I ever knew of being found near here was one found in Canton, 7 miles from me. There were five eggs, color pearly white, dotted with sharp points of reddish and one or two dots of purple, chiefly at the large end. Two of the eggs in my possession measure .58x.50, and very much resemble those of a chickadee. Nest on the ground on sandy plains and underbrush. The bird was shot and fully identified. Nests in June.

86.



.65x.48.

No. 86. Orange Crowned Warbler, (*H. celata*). Extremely rare in Maine. I saw a nest found by F. A. Pitts, in '85. The bird (female) was of a dull olive with orange stripes over the head and eyes. If I am not mistaken she had also a light bar on each wing. The nest was placed in the side of a hillock in a swamp and composed entirely of the leaves of the mare's tail. The eggs were five in number, of a pure white, blotched with faint brown and lilac, chiefly at the larger end. Many of the blotches were confluent. The tint of the brown on eggs now before me is a dull rusty amber. They measure .65x.48. Nest in June.

No. 87. Tennessee Warbler, (*H. peregrina*). Extremely rare. F. A. Pitts found a nest in '85 on ground under shade of an evergreen bush on hill. His notes read: "Nest composed of grass and rushes placed on ground, lined with fine grass and hair. Bird brownish olive, about size of yellow rump warbler and somewhat resembling it. The bird did not fly but ran from the nest after the manner of the finches. Eggs four in number, color pinkish white, spotted and blotched with reddish, chiefly at larger end. Size .69x.48. The bird was named by a taxidermist near me as the Tennessee warbler. Two eggs from this set in my cabinet measure .68x.49 and .69x.45 and are roseate white, blotched with reddish. There are also a few deep shell markings of pale lavender. There are many scratchings of faint red brown running lengthwise the shell. Nests in June.

No. 93. Summer Yellow Bird, (*Dendroica aestiva*). An abundant summer resident. The bird is of a bright yellow, with fine black lines running lengthwise the breast. Female olive yellow, duller than the male. This is the most common warbler we have, building its nest near houses. One in a lilac bush in my own yard was placed in the forks of the bush and built entirely of cotton. I have found many nests and all were composed principally of cottonwood strings, etc., collected near house. The eggs are usually five in number, in color white, with a very marked tinge of green, spotted and blotched, chiefly at the larger end with amber, lavender, olive and purple. Size .62x.50. Nests in May and June. I found one nest in '85, that were darker than common and spotted with amber and purple so dark as to appear black. Occasionally the cowbird uses this bird as a foster mother for its young.

No. 95. Yellow Rump Warbler, (*Dendroica coronata*). Tolerably common. Brownish olive in color, with yellow under wings and between wings and roots of tail. Nests in forks of trees.

To be continued.

### Birds of New Mexico.

CHARLES H. MARSH, SILVER CITY, N.M.

An abandoned ranch covered with a rank growth of weeds and sunflowers was fairly alive with warblers during the first ten days of September, the most abundant perhaps being the pileolated warbler, many of them adult males with their neat suits of clear olive-yellow and glossy blue black crown; others, females and young birds, in their more subdued dress and with the crown patch obscured or wanting. These for the most part seek their food high up among the heads of the sunflower stalks, quite in contrast to another dainty little warbler which confines its search to the ground among the roots of bushes and weeds. This is the Macgillivray's warbler, the male bright olive above, clear yellow below, the feathers of the throat being blackshaded with ash; the olive of the head shading into ash, the eyelids white, feet flesh colored. With it, a near relative, the Maryland yellow-throat, is sometimes found, though by no means as abundant here as the former. Here too, I find a few specimens of the summer yellow bird, for the most part young birds. Among the rarities that I found upon this ranch were several Virginia's warblers; the general plumage being washed with greenish-olive, a chestnut crown patch, partially concealed; a white ring around the eye; below white, shaded on the sides, the throat with a yellow patch and the upper and under tail coverts yellow.

The orange-crowned warbler completes the list of those that I found at this time and I missed from the number several that I collected in the same locality during the spring, viz: Audubon's Grace's and black-throated gray warblers.

The sparrows and finches are seemingly everywhere and in greater or less abundance, depending upon the species. Upon the prairie and mesa sides the western lark, finch, and western savannah sparrow, with an occasional Baird's bunting among the low trees and bushes bordering some cultivated piece of land, white-crowned and intermediate white-crowned sparrows, mountain song sparrows, Lincoln's finches, western chipping sparrows, spurred green-tailed and car-rion towhees, while here and there and everywhere are flocks of house finches, the greater part in their modest gray dress, though an occasional crimson head and breast may be seen.

Early in the month the Mexican shore larks begin to assemble upon the prairies and along the road sides; soon they are joined by chestnut colored longspurs and a little later by McCawns' longspur, till the combined flocks may, literally be numbered by thousands.

Upon the moist crenegas the western meadow larks gather in flocks, which, however, are outnumbered by the countless hosts of red-winged and Brewer's blackbirds that throng here from their summer breeding grounds.

From a low branching bunch of cactus runs a flock of scaled, or, as they are called here, cactus quail, upon the approach of the collector, and with rapid steps hasten toward the neighboring hillside, till too closely pressed or startled by a shout they seek safety in flight and conceal themselves among the clumps of grass and bushes.

From a rough and rocky hillside covered with a stunted growth of trees and bushes may be heard the call of the Gambel quail and in searching for these the hunter may be so fortunate as to start from almost beneath his feet, a bunch of Masserras.

Truly, for the ardent collector, September is a busy month, and unfortunate must he be if at its close his collection is not largely increased and enriched.

### The Meadow Lark.

BY EARNEST M'GAFFEY.

A sea of grass on either side,  
The prairie stretches far and wide,  
Its undulating line of blades  
Reflects the noontide lights and shades,  
And brings before me one by one  
The pictures wrought by wind and sun.

And silence reigns, save for the breeze  
And muffled hum of drowning bees,  
Till in the summer hush I hear  
A prairie signal sweet and clear,  
In mournful, piercing notes that mark  
The whistle of a meadow lark.

Like one wild cry for love and lost,  
From some lone spirit tempest-tossed,  
It wafts across the waving grass,  
And blending with the winds that pass,  
It scatters echoes at my feet,  
So full of pain, so deadly sweet.

Oh! heart of hearts, could my unrest,  
Find such a song within my breast,  
My passionate and yearning cry  
Would echo on, from sea to sky,  
Along the path of future years,  
And touch the listening world to tears.

### How to Pack Eggs for Transportation.

BY R. E. RACHFORD & SON.

In packing eggs for transportation always use strong boxes made from light material. We find that cigar boxes answer for this purpose better than any other we have used. The smaller size are preferable. They are not so apt to be broken in shipping, and breaking the eggs, as the larger ones. Besides this we have noticed that where eggs are four or five layers deep more get broken than when there are only one or two layers.

Across each end of the box, on the inside nail a small cleat. This is to prevent the top from being broken in and breaking the eggs. By the rough handling they receive in the mails the tops are often smashed in unless cleats are used.

There are several modes of wrapping eggs, but only three that we would rec-

ommend. We have learned from experience that eggs wrapped in these three ways are less liable to be broken than when wrapped otherwise. The first mode is to simply envelope the egg snugly in cotton. To do this cut your cotton with a pair of scissors into rectangular shaped pieces. Have these pieces a little wider than the length of the egg, and long enough to wrap around several times. Tear these pieces into thin sheets. Now placing your eggs at one end of the sheet, roll the cotton around it pretty much in the same manner that a merchant rolls the paper around a spool of thread, remembering, however, that it is eggs and not thread that you are wrapping.

The second mode is to not only envelope it in cotton but to wrap the cotton with thread after it is placed around the eggs. However, never tie the ends, but always leave one of them so it can be easily found. A great many eggs are broken in unpacking where the ends of the thread have been tied together or cannot be easily found.

The third mode is to wrap the egg first in cotton in the manner stated above, and then instead of securing the cotton with thread roll tissue paper around it. This we consider the best of the three modes. We have had fewer eggs broken when wrapped in this manner than when wrapped otherwise.

When you are ready to pack your eggs in the box first put cotton in the bottom and all around the sides, as it will be a great protection to the eggs. Never throw eggs in a box loosely as some of them will invariably get broken before they reach their destination. Put them in snugly, not crowding, however, as crowded eggs are more likely to breakage than loosely packed ones. All the little spaces between the eggs and the box fill with cotton. Do not jam it in but put in just enough to hold eggs in their places. Eggs packed thus will nearly every time reach their destination safely.

### Canadian Wild Birds.

BY WM. L. KELLY, LETOWEL, CANADA.

#### THE WREN.

This is a family of small, very interesting birds, of which there are some five or six species regular visitants of Canada. They seem in many of their habits to be allied to the warblers in the great chain of Ornithology. Two species, namely, the house wren and the winter, or wood wren, are quite common in the central parts of Ontario during the summer months. Two other species, the long and short billed marsh wrens, are found in such places as the St. Clair flats. Of the nesting and general habits of the other species I have no knowledge.

The Ruby-crowned Wren.—(*Regulus calendula*). This pretty bird is remarkable for the ruby or scarlet colored patch on the crown of the head. It spends the summer season and breeds in latitudes north of Ontario, but passes through this province in its spring and autumn migrations, but in mild winters some of them remain in the southern districts. Its song notes are very pleasing. Its food is chiefly small insects and their larvæ.

The Golden-crested Wren.—(*Regulus satrapa*). This species is rather more common than the ruby-crowned, but in size, general color and habits it is much similar. It is, however, distinguished by a crest of orange-red encircled by yellow. In its southward journey it arrives in this country in October, and passes north again in May.

The Short-billed Marsh Wren (*Aistothorus stellaris*).—This bird is pretty common in such places as the St. Clair marshes, where the shallow water is grown up with flags and tall coarse grasses, among which it passes much of its sportive life, finds its foods, and builds its compact nest. The eggs are from five to nine, of a white hue, sparingly dotted with reddish-brown spots.

The Long-billed Marsh Wren (*Cistothorus palustris*).—This species is five

and a half inches long. Its color is dull, reddish-brown above; under parts and a mark over each eye white. It dwells among the flags and other rank vegetation growing in marshes and other inlets to lakes and rivers, and is especially abundant in the St. Clair flats. Here among the thick flags it builds a downy nest, mostly of cattail down and other fine materials. In this are deposited some six eggs of a deep chocolate hue, dotted with dark spots. The nest is generally only a few inches above the water-mark. It feeds on such insects as it finds in such places, and its general periods of migration are the months of May and September, though specimens are sometimes found in their summer haunts, even in the winter season.

The House Wren (*Troglodytes ædon*).—The active form and twittering notes of this little creature are well-known to every person acquainted with the rural scenery of Ontario. In length it is a little over three inches, and its general color is reddish-brown above, and ashy gray beneath, and it usually nests twice in the season, the first set being generally six to eight; these are of a reddish hue, dotted with pale reddish brown. It is a resident in all the rural districts, being found equally common in the vicinity of villages and farm residences, as well as in the small clearings of the backwoods settlers though it finds in the latter places more suitable sites for nesting purposes. It will make its nest in any hole or cavity that it finds convenient, and no small annoyance will drive it away from a place that it has chosen for its home, and when not disturbed will return to and nest in the same premises for successive years. Scarcely has the pioneer begun to make a clearing in the forest, if it is in the early part of summer, than from among the fallen timber or the newly cut stump is heard the constantly repeated twittering song of this active and enterprising little bird.

(To be continued.)

## The American Woodcock.

BY VIREO.

The American Woodcock belongs to the order *Limicola* or *shore birds*. It inhabits all of Eastern North America, and is sometimes seen as far west as the Mississippi. It is eleven inches long, the wing five and a quarter inches, and the bill about,  $2\frac{3}{4}$ , fitting it for probing in the mud for insects and worms, upon which it lives. The upper mandible is longer than the lower and fitted to it at the tip. The eyes are far from the bill, near the back of the head, and the tail is very short. The occiput has three transverse bands of black, alternating with three of pale yellow; the upper parts of the body variegated with reddish and black, and the under parts pale rufous; bill brown and legs pale reddish. In fact, the bird is so colored that it is only by close examination that it can be detected from the brush and dead grass in which it hides.

The woodcock is mainly nocturnal in its habits, seldom flying in the day time except when disturbed. It walks about, however, and feeds by day as well as by night. It feeds mainly on earth worms and will eat as many as its own weight in a day, so that it inhabits low, marshy places where these are abundant.

To secure this little bird is the object of many a hunting expedition, and so swift is its flight that only the most expert hunters are able to bring it to earth. When disturbed by hunters or dogs it flies but a few yards and again alights. I remember being with a hunting party on the bottoms of the Illinois river, when we came upon a clump of bushes much frequented by this bird. We had not the least idea of seeing a woodcock in that region—when whirr-r-r. We looked around, but there was nothing in sight. Concluding that we had been deceived, we turned to walk on, when again that whirring sound, as if a flock of quails had suddenly taken flight near us. Again

we turned and again we saw nothing. We now determined to keep our eyes open, so we held our fire arms at a ready and advanced toward the bushes. We had not gone far when a small, brown bird suddenly disappeared around the corner. "A woodcock!" exclaimed one of our party; "now for some fun," and fun we had. For nearly an hour we thrashed the bushes and shot at woodcocks for they would not leave, but would fly up and go around to another side and drop in again, and it was done so quickly that we could hardly get the guns to our shoulders before they were gone. It is, perhaps, needless to say that we left without any game.

The woodcock spends the winter in warm climates but breeds from the Carolinas to Nova Scotia. The nest is made of dead leaves and grass, and is placed on the ground under a bush or beside a fallen log. The eggs, which are laid from February to June, according to locality, are usually four in number, of a dull, yellowish gray color, irregularly and thickly marked with dark brown. In three or four weeks after hatching the young are able to fly, and when six weeks old they fly as well as the old ones.

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When does a cow become real estate?  
When she is turned into a field.

How many sticks go to the building of a crow's nest? None; they are all carried to it.

Why would it affront an owl to mistake him for a pheasant? It would be making game of him.

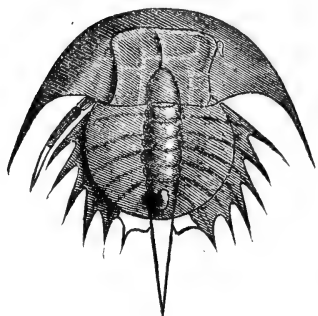
Which is the most wonderful animal in the farm-yard? A pig, because he is killed first and cured afterwards.

Why is an alligator the most deceitful of animals. Because he shows an open countenance in the act of taking you in.

Why are fowls the most economical creatures that farmers keep? Because for every grain they eat they give a peck.

**Bellinurus Danae.**

BY H. G. HILL, MORRIS, ILL.



The Mazon creek fossil beds were discovered by Mr. J. Evens in 1857, which have since been visited by hundreds of collectors, and have given this class of fossils a peculiar interest to collectors, being the richest deposit of fossils yet discovered on this continent. Although the new species now presented to the scientific world far exceed in number all that have hitherto been found in the carboniferous age of North America. We nevertheless believe that the locality is by no means exhausted, but will yet afford many other new types. Now a word on *Bellinurus Danae*. Of the known species of *bellinurus* ours is most nearly related to *B. bellulus*. The type of the genus, if we mistake not, which is regarded as being identical with *Limulus rotundatus* of Prestwich. From this species, however, it may be at once distinguished by having the lateral angles of its cephalo thorax produced into long, slender spines, and the flattened border of its abdomen proportionally much narrower and armed with a series of curved spines instead of being merely serrated.

**The American Goldfinch.**

BY W. H. FOOTE, PITTSFIELD, MASS.

This handsome little bird, commonly called the wild canary, is one of our most common summer residents, arriving very late in the spring, and remaining long after most other birds have departed for their winter homes in the sunny south.

The song of the goldfinch is nearly equal to that of the woodthrush in melody, depth of tone and flute-like effects. Many a morning when out collecting have I stopped and listened to the sprightly little male delivering his solo from the top of some swinging sapling.

Its nest, which is outwardly composed of moss, fibres, fine dry grass, and sometimes paper, and thickly lined with thisle down, is usually placed in the fork of some young sapling or bush about ten feet from the ground.

The eggs, five in number, are pale bluish-white, unspotted, measuring about .54x.52, and are to be found fresh any time in August and sometimes later. I found a fresh set of six, August 30, 1884, which I now have in my collection.

**72 Eggs by One Bird.**

Some unfeeling ornithologist in Dighton experimented on a golden-winged woodpecker, by reaching into the hole and robbing her nest every day of all but one egg. The poor bird, determined to raise a brood, kept on laying until she had laid thirty-six eggs on as many different days, and then she rested one day and went at it again, and finally she actually laid seventy-one eggs in that untrustworthy nest.—*Chicago Times*.

**Arrival of Birds at Valparaiso.**

OUR young friend, Tom Carver, makes the following report on arrival of spring birds at this city: March 6 blackbird; March 10 robin; March 15 red-shouldered blackbird; March 20, one each of the following: Buff-shouldered blackbird, towhee bunting, black-capped chickadee, golden-winged woodpecker, and bluejays building a nest; March 22, English sparrow eggs; April 8, red-headed woodpecker; April 10, belted kingfisher, jacksnipe, and two loons; April 12, loon. [The loons were shot on Flint lake and on being brought to the HOOSIER NATURALIST office were purchased and stuffed by ye editor.]

OUR good friend, B. Horner, called on us March 17. During our conversation with him we learned he was a "single man—an old bach—with a shot gun and two yaller dogs." He reports trapping during the winter 40 skunks, 4 minks, 20 muskrats and 4 coons. In his neighborhood, (six miles north of this city) black, grey and fox squirrels are scarce, while the red squirrel is found everywhere in great numbers. Prairie chickens scarce, though ruffed grouse could be heard at any time. He had seen three flocks of quails and had accidentally shot one of their number. Crows and bluejays common throughout the winter. While coming to town he noticed a pair of red-tailed buzzards building a nest, also saw several yellowhammers, red-headed woodpeckers and meadow larks in flocks.

**From B. F. Hess, Phoenix, N. Y.**

Bluebird, March 15; robins, (2) March 16; red-shouldered blackbird, March 17; bluebirds, common, March 17; killdeer plover, March 18; killdeer plover, common, March 19; meadow lark, rusty grackle, purple grackle and marsh hawk, March 20; kittawake gulls, common, March 20; meadow larks, common, March 23; towhee bunting, common, March 24; rusty grackle, (female) March 24; red-poll linnet, March 27; towhee bunting, common, March 28; red-winged blackbird, (female) March 29; great blue heron, March 29.

**EXCHANGE COLUMN.**

To exchange—A light, handy gun for desirable sets of Raptore's eggs. F. W. Andros, Taunton, Mass.

Madstones, for best cash offers. Also 5 city lots for stock of dry goods. Large lot of books and other things. Send lists of what you wish to exchange. S. P. Seawell, P. M., Ben Salem, Moore Co. N. C.

A good compass in a neat polished case for sea shells or fossils. Ellis D. Robb, Eldora, Ia.

For exchange—2.60 eggs; B. L. Gun 12 g; M. L. Gun 10 g; magic lantern, 75 slides; stuffed birds and small lot coleoptera. Wanted—Good single B. L. gun, 12 g, 22 g auxillary rifle barrel, any good American watch, field glass, shells, etc. M. C. Harriman, Warner, N. H.

I will send a piece of Niagara limestone, Trenton limestone, Galena limestone, St. Peters sandstone or Maquoketa shales for other formations. A brachiopod or gasteropod for rhizopod. Fred. R. Stearns, Elkader, Iowa.

I will send full directions for preserving birds without skinning, in exchange for eggs. Will also exchange eggs. LeGrand T. Meyer, Hanover Centre, Ind.

Would like to exchange bird skins and eggs with collectors having such as I may want, especially from the South and West. Willard E. Treat, Box 103, East Hartford, Conn.

For exchange—My collection of side and end blown eggs, without data. Send list and prices and receive mine. Thos. H. Carver, Valparaiso, Ind.

Eggs for exchange or sale. A number of desirable kinds in original sets, with date including a few of the Florida Limpkin. Address with list, Thos. H. Jackson, West Chester, Pa.

Insects for others; please send list to Dr. H. G. Griffith, Burlington, Iowa.

Wanted, to sell for cash, or exchange for books, pamphlets, etc., Indian stone implements found in Ohio and Indiana, Send stamps for outlines. J. R. Nissey, Box 228 Mansfield, O.

# The Hoosier Naturalist,

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has expired. Please renew.

VALPARAISO, MARCH, 1886.

MR. DOWNS, editor of "Tidings from Nature," has transferred, as he states in the last number of that worthy magazine, "the entire right and title," of the aforesaid magazine, along with his good will, to us. We thank Mr. Downs for his encouraging words, and can assure him and all his subscribers who will receive this number of the HOOSIER NATURALIST that we will exert ourselves to make our magazine worthy of their support, which we trust will be freely given. We have received many letters of congratulation on securing so valuable a journal as "Tidings from Nature," and we can add with pleasure that all deeply regretted Mr. Downs' inability to continue it. A magazine of this nature demands a vast amount of corresponding, and now that Mr. Downs is relieved of all this he will no doubt regain his health and have ample time to attend to other business. Before deciding not to continue with us we would be pleased to have you turn to our "Surprise Party," further over, and read it carefully and help the cause of science by helping yourself as well as us.

## BRASS.

An exchange says that the rich red upon the wings of a certain Cape of Good Hope bird is caused by eating food containing copper, and further, that copper is found in some animals, especially the oyster. Then it goes on to say that zinc is found in many plants. Everyone knows that brass is an alloy of copper and zinc, and we are now thoroughly convinced that the West Indian who sent us an unstamped letter, on which we paid ten cents, and which contained *obliterated* stamps to the amount of 35 cents and a request to forward a quarter-gross of

"Ideal" pens whether the stamps were of value to us or not, had been eating copper oysters and zinc plants until he had become a perfect alloy of brass.

## CRIMSON SNOW (PLANT).

Many of our readers have probably never heard of red, or crimson snow, as it is frequently called. Mr. Hitchcock, of the National Museum recently read a paper on red snow before the Bi-ological society of Washington. He said that there had been considerable difference of opinion among naturalists about the character of the *globules* which give color to the same. While he considers it a plant, he thinks it hardly possible to fix its systematic position until the method of propagation is better understood.

He received specimens from Colorado in January, and attempted to cultivate some of the cells, but failed.

This snow is found in glacial as well as polar regions, and was referred to among the ancients by Aristotle. Again, in 1760, Saussure observed it in the Alps.

The specimens brought home by Capt. Ross, aroused considerable interest. He found it covering a range of cliffs along the shore of Baffin's Bay for about eight miles, and in several instances coloring the snow to a depth of twelve feet.

There is in the National Museum a dry specimen of the red snow plant, collected by Dr. Kane, from the crimson cliffs of Beverly. This plant in its mature state consists of brilliant globules, resembling garnets and from being extremely abundant give to the snow this peculiar red color.

Captain McClintock, in his diary of July 4, 1854, says, "of course we obtained specimens of red snow, but had to seek rather dilligently for it; its color was a dirty red, very like the stains of port wine; very few patches of it were found." It was first discovered by Robert Brown, an eminent English botanist, who pronounced it to be an *unicellulæ* plant of the order of *algæ* and the literature of today confirms his ideas.

W. H. FOOTE, of Pittsfield, Mass., desires that we reprint Nos. 1 and 4 of the HOOSIER NATURALIST in magazine form; others have written to the same effect. We would like to do this, but as there will be considerable expense attached, it will be necessary for those wishing this reprint, to drop us a postal card agreeing to pay fifteen cents for the two, and if there are enough to warrant the expense then we will have them printed at once.



WE have just received a copy of the American Ornithologist's Union Check List of North American Birds, being the report to the Union of their committee on classification.

It has been apparent to all that no progress toward a perfect check list of N. A. birds could be made until certain points of dispute regarding nomenclature could be settled.

The first work of the committee lay in thoroughly investigating the rules, precedents and practices of nomenclature. It resulted in the introduction to the present work,—an analysis of the points upon which the authorities differed.

PART I consists of an explicit and thorough exposition of the principles of nomenclature by which the committee were guided in deciding the proper names of the disputed genera and species.

PART II is a classified list of all the N. A. birds known to date. This list is based upon the agreement between the three great authorities, Baird, Ridgway and Coues. The names of the *genera* and sub-*genera* are accompanied by references to the work on paper in which they were first established. The committee, in all cases, have worked in the belief that the law of *priority* is the one underlying principle of nomenclature, and, therefore, the names of the species and sub-species are followed by a citation of the publication where they were first described.

Another valuable, and, in fact, indispensable feature of this check list is the concordance of previous check lists to which is added a brief statement of the geographical distribution of each species and sub-species, with special reference to its N. A. range.

The book is the result of the expenditure of much time and research on the part of the committee for the last two years, and will doubtless prove more satisfactory than either of its several excellent predecessors.

The work, making an octavo volume of about 300 pages, is printed on fine paper, and no care has been spared to make it typographically attractive and accurate.

For terms, etc., see "adv." on cover-page or address this office.

V. E. PISTON, of Rockland, Me., recently favored us with a few cards, printed with our name and business. They are the neatest we have had and we bespeak for him a large trade, as his prices are rock-bottom.

### Migration Observations.

Amos W. Butler, of the Indiana Academy of Science, is very anxious to secure a number of reliable persons in Indiana to co-operate with him in observing and recording phenomena pertaining in any way to the migration of our birds. The chief things to notice regarding the species which migrate are:

1. When first seen on its return from the south.
2. How many were seen.
3. When next seen.
4. When did it become common?
5. When last seen (in case of those species which pass on further north to breed).
6. Is it common or rare.
7. Does it breed in your neighborhood.

Please let him know if you will act as an observer in your locality. The results of the year's work will be published and due credit given each observer for any work he may do.

A CORDIAL invitation is extended to all who can possibly attend the meeting of the Indiana Academy of Science, May 20-21, at Brookville, this State. At present the programme has not been completed. An interesting feature of the second days' work, however, will be the study of the natural history of the White Water Valley, in the field. Papers will be presented by some of the leading scientists of the State, and altogether a very profitable and interesting time may be expected. We repeat, let everyone interested attend.

—G. O. SIMMONS' "Diamond Mineral Collection" is a genuine treat. There are fifty specimens in all; thirty non-metallic and twenty metallic minerals, arranged in a novel and original plan and securely fastened in a neat box, 6x10. Above each specimen is printed the name of the species, and below the chemical or common name. A descriptive manual accompanies the set, which explains the composition and use of each mineral, with general localities where they are found. They are classified after Dana and would be found of incalculable benefit to any one in the least interested in mineralogy. Notice his "ad." on the cover and send to him for descriptive circular.

## MINERALOGY.

Conducted by THOMAS S. ASH, 126 Chestnut Place, West Philadelphia, Pa., to whom all articles pertaining to the subject should be addressed.

In assuming the editorial management of this department, which is to receive our most assiduous attention, it will be our aim to make it a medium of instruction and of reference.

Its columns will contain all the latest mineralogical news, descriptions of new species, reports on new localities, etc.

To solicit your patronage we have decided to offer each month, a fine mineral or a collection, as a premium, to the one who first sends a correct answer to a series of mineralogical questions. Conditions are, FREE to subscribers, and an entrance fee of 25 cents to non-subscribers. All specimens will be worth not less than \$1.50. A description will be given of the specimens offered.

We shall be pleased to assist our readers in their study, and specimens will be identified gratis.

We respectfully solicit your assistance in the way of articles, exchanges, subscriptions, etc.

We offer as a premium this month a fine specimen of the rare specie Desclozite, from Lake Valley, Sierra county, New Mexico.

The following are the questions:

1. What is a crystal?
2. What crystals possess the phenomena of double refraction?
3. What was the substance supposed to crystalize in the so-called Diclinc system?
4. What does the word Rhombohedral embrace?

A brief description of our premium for this month: Desclozite, crystallizes in the orthorhombic system, sp. gr.—6.105. Color columbine red to cherry red; picro-pale orange yellow, with a slight brownish tint.

An analysis by Prof. F. A. Genth yielded:

Pb O—56.33.  
Cu O—1.24.  
Zn O—17.80.  
Mn O—0.61.  
Fe O—0.19.  
As<sub>2</sub>O<sub>5</sub>—0.17.  
V<sub>2</sub>O<sub>5</sub>—21.29.  
H<sub>2</sub>O—2.37—100.00.

It occurs with calcite, quartz, lodpyrite,

vanadinite, and pyrolusite, at Lake Valley, Sierra county, New Mexico. For full description refer to "Contributions from the Laboratory of the University of Pennsylvania," No. 23.

### Notes on Winter Birds of East Hartford, Conn.

Tree sparrows, (*Spizella monticola*, 559,) first seen Nov. 7, and from ten to twelve from November 10, to Jan. 1, 1886; were noticed nearly every day in sheltered places in swamps and brooks. The cold wave of January 9, brought several flocks from the north, ranging from four to fifty in each flock. Since then they have become quite tame and somewhat musical on warm days.

Snowbirds, (*Junco hiemalis*, 567,) were first noticed here on September 16, a very early date for this bird. I did not see any again until October 12, and a very few on November 7. These birds have been scarce here this fall, that is, I mean comparatively scarce for this bird, as I did not see over fifty in all up to January 10. Cold waves since the above named date have brought them in large flocks around houses and barns for food.

Ruby-crowned Kinglet, (*Regulus calendula*, 446,) first seen October 10. They were common from this date to the 15th of the same month together with the golden-crowns. After this they were only occasionally seen, but the golden-crowns were common all winter. The last ruby-crown was seen January 11, 1886.

Hairy and downy woodpeckers were common all winter, while black-capped chickadees and white-bellied nuthatches were the only birds which enlivened the woods with their notes to any extent. Pine linnet somewhat common in small flocks in favorable localities; brown creepers were seen most of the winter; five or six golden-winged woodpeckers braved the winter and during warm spells they seemed to take great delight in galloping through the air. Field sparrows were seen occasionally up to January 26, which is by far the latest date that I have known them to remain here. No snow bunting, pine grosbeak or red-poll linnet seen this winter.

# THE

# HOOSIER NATURALIST.

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## Fabulous Animals, No. 2.

BY G. DALLAS LIND, M. D.

### THE GRIFFIN.

The griffin, griffon, or gryphon, is commonly represented as having the body, feet and claws of a lion, and the head and wings of an eagle. It is sometimes described more minutely as having the ears of a horse and a comb like the dorsal fin of a fish and the back covered with feathers. Aelian, an Italian writer of the third century, described it as having black feathers on its back, red feathers on its breast and white feathers on its wings. Ctesias, a Greek physician of the fifth century, said it had a blue neck and fiery eyes and could conquer all beasts except the lion and the elephant.

*De Rerum Natura*, an ancient book, describes the griffin as being larger than the eagle, its fore feet like the eagle's and its hind feet like the lion's. Further, that it laid an agate for an egg and drinking cups were made from its talons. Some writers describe it as having a tail like a serpent. It was believed to have been the product of a cross between the eagle and the lion.

India was supposed to be its native country. It was found only where there was gold and precious stones which it zealously guarded, attacking and devouring men who attempted to approach the spot. Some writers asserted that its nest was made of gold and that one could be taught and tamed while young but never when full-grown. It was also said to be

an enemy of the horse and was consecrated to the sun. Ancient paintings represent the chariot of the sun as being drawn by griffins.

The first mention of this fabulous being was made by Aristeeas, a Greek, the author of a book called *Arnimispeia*, in which is described the countries of Northern and Central Asia, about 560 B. C. Herodotus and many other writers borrowed largely from this writer and it is probable that many of the accounts of the griffin are to be traced to this source, later writers borrowing the idea and elaborating it.

The griffin has been much used in heraldic devices, probably because of its supposed symbolism of great strength and swiftness. Leigh, a noted herald of the time of Queen Elizabeth believed it to have a real existence. He says, "I think they are of great hugeness, for I have a claw of one of their paws which show them to be as big as two lions." The Greeks had many sculptured representations of the griffin in their architecture.

How could a belief in the existence of such an animal have originated? Did some one invent the story and others copy his statements and believe them for the truth? Boettger, a German writer maintains that the griffin was merely a creation of the imagination of the tapestry makers of India, for mere ornamental purposes doubtless, and that the Greek travelers seeing the tapestry at the court of Persia believed and reported that the animal depicted had a real existence.

It is probable that some religious en-

thusiast invented the story of the griffin to enforce the idea that man is punished for his greed and thirst for gold. Different writers may have invented the same story for different purposes.

### Maine Notes.

GEORGE H. BERRY.

No. 659. Chestnut-sided Warbler (*Dendroica pensylvanica*). Abundant. This bird can be distinguished from all other warblers by a chestnut colored stripe extending from each side of throat down each side of the breast and body. The head is yellow, body bluish-gray, wings barred with yellow, breast grayish-white. This bird nests in low bushes by the side of the road, in pastures, etc. They make a small upright nest of grass and usually line it with hair and feathers. Eggs four or five. One peculiarity of this warbler is that if you handle the eggs or visit the nest often they will forsake it. The eggs average .65x.49 and are pure white in color, spotted chiefly in a ring around larger end with amber, lilac and purple. Some of them have a slight greenish tinge. The ring is placed around the greatest diameter of the egg. Variation from .63x.45 to .70x.50.

No. 660. Bay-breasted Warbler (*D. castanea*). Rare in this locality. I saw one shot in June. The bird on back and wings resembled the chestnut-side but did not have the chestnut stripes. Instead the breast was of a dark red bay in color. Its song is not so quick and differs in several respects. Nests in high trees. One found in Canton was built some forty feet from the ground. Composed of grass, pine needles, etc., and lined with moss and bark. It contained four eggs of a bluish-green color, spotted and marked with dark brown and purple, with a wreath of deep shell markings of a lavender color around the larger end. Size of those in my collection .64x.51. Nests in June.

No. 661. Black-poll Warbler (*D. striata*). Quite common. The male is black

and yellow. Female much the same, but duller. It would be hard describing this bird and the only way I ever learned to know it was by examination of a stuffed specimen. A nest found July 10th, contained four young. It was built in forks of a small limb on body of a small hemlock. This nest was composed almost entirely of feathers. One found in June was built in an ash tree of grass lined with feathers. This contained four eggs of a white color, dotted and spotted with brown, purple and lavender. Some sets are pretty well marked, others chiefly in a circle around larger end. Eggs measure .72x.50, and are laid in June. The bird frequents swamps and low lands. Nests usually are in damp thick woods.

No. 662. Blackburnian Warbler (*D. blackburniae*). Extremely rare. I never found a nest but one was found June 28, 1885, in Phillips, some forty miles from me, built in the forks of a small maple. It contained four eggs, one of which I have, measuring .64x.54, and in color white, blotched chiefly at the larger end with quite large blotches of reddish brown amber and lilac. A few fine dots of purple are scattered over the egg.

No. 671. Pine Warbler (*D. vigorii*). Rare. Found a nest in '82, in pine tree by side of road. In '85, found one in scrub pine bush in pasture. Nest composed of grass. Four eggs in nest. Eggs measure .72x.53, and now are greenish white in color, with large blotches of faint brown, with a few dots of purple and a ring of pale lilac shell markings around the larger end. I have one egg that I obtained in '84, that is pure white. The others in the set range from pure white to greenish, all marked the same. The bird is shy and constantly in motion and difficult to identify. The eggs, however, are different from any other warbler, half of the eggs in the greater majority of my specimens being brown. Nests in May and June.

No. 675. Water Thrush (*Seiurus noveboracensis*). This bird is quite common

around the ponds and always in motion. The female resembles a female red and buff-shouldered blackbird but is smaller and lighter. I found one nest in '85 under the upturned roots of a tree. There were five eggs, resembling those of the golden-crowned thrush, but the markings were more in the shape of lines and scratches, and, if anything, were darker. Size .78x.54. Nests in June in this locality.

No. 678. Connecticut Warbler (*Geothlypis agilis*). Rare. I never saw bird or nest, but a nest was found about twenty miles from here in Buckfield. Nest on ground. Eggs white, spotted with rusty red and lilac. Five in nest which was found in June.

No. 681. Maryland Yellow-throat (*Geothlypis trichas*). This bird is quite common. Main color yellow; a black stripe over each eye. The nests are placed in very low bushes on the ground beneath thick bushes, which it haunts, composed of grasses. Number of eggs, four or five. Color white, sometimes with a fleshy tinge, spotted on the larger end with a ring of rusty brown lavender and purple. Some of the eggs resemble those of the wood pewee, others have some blotches over the entire egg. These eggs are more and less pyriform than those of most warblers. Average measurement of those in my collection .68x.50. Nest in May and June. One in my collection measures .71x.53.

No. 683. Yellow-breasted Chat (*Icteria virens*). Rare. Two nests found in '85 contained five eggs each color; ranging from glossy white to greenish white, splashed and dotted with reddish. Size .90x.68. Nests on the ground. Nest composed of grasses, lined with downy substance. One nest found in '83, was in a low bush. The bird is shy and when the nest is disturbed makes more complaint than most of the warblers. Nests in May and June.

No. 686. Canadian Warbler (*Sylvania canadensis*). Rare. Found one nest in '85 on ground. Four eggs. Eggs in

color and shape resemble those of the Maryland yellowthroat, but are smaller. Size .68x.52 to .70x.53. They nest in June in outlands and open spots in woods.

No. 687. American Redstart (*Setophaga ruticilla*). This bird deserves more than a passing notice. It is one of the most beautiful of our native birds, deep black in color with wing bars, bar on tail, and spots on body, of a rich orange red. It looks like a speck of flame as it flies through the dark woods. It nests in June in small trees. The nest is usually built of some grayish substance and is very hard to discern. Eggs four or five. They average .67x.49, and in color are pure white, spotted with purple so dark as to be almost black, rusty brown and lilac. The marking in most specimens is confined to the larger end. One set I have seen were chiefly marked with brown and in a few examples the spots are on other portions of the egg, but rarely.

No. 624. Red-eyed Vireo (*Vireo olivaceus*). This bird is long and slender, of an olive brown, with a light stripe over each eye and grayish breast. The nests are built in trees at heights ranging from eight to forty feet. The nest is always composed of the bark of the birch, lined with the needles of the pine and suspended from the ends of a small limb. The eggs are usually five in number, pure white, sprinkled with purple black dots, chiefly at the larger end. Some in my cabinet are unspotted, others quite thickly dotted and one or two have marks of brown. The bird usually nests in the edges of tracts of woodland, the latter part of June, and is quite common. Size of egg, .78x.60.

No. 627. Warbling Vireo (*V. gilvus*). Rarer than the preceding species. Eggs rounder, measuring .71x.58, fleshy white, thickly dotted with rusty brown and purple spots, mostly at the larger end. I found one nest in '85, that was peculiar, as it was placed at the top of a small fir stump. The bird is nearly the size of the red-eyed and bears a family resemblance to it. Nests in June, in same localities, usually nearer ground.

(To be continued.)

## Meadow Mice in South-Eastern Indiana.

BY AMOS W. BUTLER.

I presume that all of your readers who are residents of this State have classified the field mice which have been observed by them as of two kinds. One form is generally known as the "white-footed mouse, or deer mouse," which is perhaps represented within the state by two or three species. The common form, however, is known as *Hesperomys leucopus* LeConte. It is yellowish brown above and white below, with a tail about as long as the combined length of the head and body, marked with both colors. While this species is, at times, found in and about fields, it is not, strictly speaking, a "meadow mouse."

The other form is the short-tailed heavy-bodied mice which are considered to be meadow-inhabiting species. It is to the latter class I desire to refer. To the observer who is not a student of mice these little animals are all classed under one head. In reality, in South-Eastern Indiana, four distinct species have to the present time been found. These mice are termed *Arvicolin*—meadow mice. They are of medium size for their family; with short limbs and apparently no neck; small eyes about midway between the ear and tip of the nose. They have three molars in each side of each jaw which are rootless. The fur is very thick, dark above and lighter below.

The most common species is *Arvicola riparius* Ord. "Common Meadow Mouse." It is generally distributed over the United States. This is the most common mammal in this part of the State. It is generally abundant everywhere save in the densest woodland. This mouse is about  $4\frac{1}{3}$  inches long; tail one-third that length. It is grayish brown above, darker along the middle of the back; breast and belly ashy. It frequents the grain shocks of the farmer in summer, and again in winter, shows its appreciation of his improvidence by making its

home in the corn shocks he leaves in the fields at that season. The runaways may be plainly traced in early spring, showing how far beneath the snow its journeyings extended. Then it is this meadow mouse begins a season of breeding which extends by successive broods over a period of nine or ten months—from February to December. At this season they may be found beneath worm-fences, brush piles, stumps or any good hiding place. By following up their subterranean passages one may find their pantry the contents of which, in early winter at least, would be a surprise to anyone who has not seen the great amount of food they lay up. These mice are quiet little fellows but occasionally give vent to a squeal which has a peculiar creak to it. One needs but visit a meadow which has been recently burned over to get an idea of the great numbers of these mice which strive to exist about us and often largely at the expense of the farmer. Their nests, large round balls, composed chiefly of fine grass, resemble a miniature musk-rat house. The single opening is below where it connects with the passages of the animal. Their nests occupy almost every conceivable location, from that partially underground to one in a hollow log or under a rail.

The rarest of the *Arvicolinæ* in this part of the State is the "Prairie Meadow Mouse," *Arvicola susterus* LeConte, known also in timber districts as "Wood Mouse". This mouse is about four inches long; tail  $1\frac{1}{4}$  inches or over. Color, above brownish, darker on the head and along the back; below chiefly bluish-gray. It appears to have a broader head and to be stouter than the preceding species. Its fur is coarse and thick, not smooth. This is about its eastern limit. It frequents the river valleys, rarely ascending very high on the surrounding hills, and appears to prefer the thickets bordering cultivated fields.

Another mouse, heretofore considered rare in this vicinity is the "Pine Mouse".

*Arvicola pinetorum*, LeConte. A few specimens had been taken at different times, but in February, 1884, they were found to be very common in a locality within four miles of Brookville. The following is a brief description of the animal: Length,  $3\frac{1}{2}$  to 4 inches; tail,  $\frac{3}{4}$  to 1 inch. Fur dense and short. The color above varies from light to dull brown; below lead-gray. In form and habits it greatly resembles the mole. Contrary to the situations selected by the "Prairie Meadow Mouse," this little creature prefers dry, stony hillsides, generally in the more open woodland. The underground passages made of this animal are farther beneath the surface than are those of any of its relations. They are also the most extensive. The nest, which is placed beneath a log or stump, is a ball of blue grass blades, lined with some finer material, the whole from 4 to 6 inches in diameter. Pine mice live upon the roots, blades and fruits of various species of plants. The tuberous roots of the wild violet appear to form the greater part of their winter food.

\* The last of the four species found hereabouts is one but little known to naturalists. I refer to "Cooper's Meadow Mouse," *synaptomys cooperi*, Baird. This mouse is found from but a few localities. Of perhaps a half hundred specimens now known more than half have been taken near Brookville. This mouse was placed by Prof. Baird in the genus *Synaptomys* because in it he found the intermediate, or connecting link, between the meadow mice (*Arvicolæ*) and the lemmings (*Myodes*). These mice may be known by their plainly grooved upper incisors and their comparatively large ears. The head is short, heavy and the long hair is quite soft. Cooper's mice appear to prefer such situations as those occupied by the pine mice but are not exclusively confined thereto. They are found in blue grass pastures in which they can find cover, and in the more open woodland in which blue grass grows.

These mice breed throughout the same portions of the year as does *A. riparius*. The nest is generally under, cover and while composed of material similar to that employed by the other meadow mice, is not so compactly built. Their chief food in winter is the more tender portions of the blue grass and white clover. This is the most active representative of its family found here; requiring a sharp eye and a practiced hand to secure a specimen when found. Its passages are never lengthy but are very crooked and intricate.

The best times of the year at which to study these small rodents is in winter and early spring, when vegetation aided by the warm spring rains, begins to advance rapidly, their passages become hidden and it is with difficulty one can learn their whereabouts. Occasionally a dark form may be seen among the grass, but beyond the knowledge that one of these little mice is about we learn nothing.

These mice vary greatly in abundance in different years. At times the common form, *riparius*, is found in such numbers as to be a positive nuisance. Some years Cooper's mouse is found comparatively common; again, the places frequented by that species are occupied in numbers by another form—*pinetorum*—which had heretofore been considered rare, and that year but a few examples of *cooperi* could be found. Whether these variations are the result of migrations or are caused by seasons unfavorable to reproduction or by disease I am unable to say.

These small animals have many enemies. Besides those which could be considered native, the smaller hawks and owls, the smaller carnivora, and the shrews, the species are said to destroy each other. While human agencies may have conducted in some degree to their development, man has introduced other factors which are prominent actors in the destruction of our smaller rodentia; I refer to dogs, cats, chickens and turkeys.

There is a field which is open and may be made pleasant and profitable to some of our young students in investigating the life histories of many of our smaller mammals, the greater part of which is, as yet, unknown.

### Canadian Wild Birds.

BY WM. L. KELLY, LETOWEL, CANADA.

And when the woods have given place to cultivated fields, and its first nesting places have been destroyed by the progress of improvement, it does not, like some other species, forsake its haunts, but continues to dwell near the habitations of men; even though a town has sprung up where once the forest stood. In some cases men have been thoughtful and grateful enough to provide this untiring friend with a habitation by putting up a box on a post; but where this has not been done the wren will soon find out a nesting place, for no hole or corner is left uninspected, and if no other place can be found it will take possession of a crevice in the wall, or the sleeve or pocket of an old coat, if hung up outside. On some occasions pumps have been so persistently filled up with brambles and stalks of weeds that the owners were glad to provide their determined little tenants with a nesting place. It is little use in any other bird attempting to drive away this wren from a box or woodpecker's hole, to which it has taken a fancy; even though it does not require it for immediate use, though repeatedly expelled by superior force, the cunning wren abides its time, and in the absence of its opponent, it soon fills up the entrance of the cavity, so that the other party cannot enter, and even though eggs have been deposited by the other species, the wren will destroy them and hold possession; and at times he will not hesitate to face in open fight birds far larger than his own size, and when a rival appears upon the scene he is attacked and driven off with all the pugnacity of a game bantam. Its affection for its mate and attachment to its eggs and young are also very remarkable. On one occasion a pair of wrens nested in a hollow stump, near dwelling house, and soon after the female began to sit. She was caught and killed by a cat; the male bird, who had witnessed the affair,

and who had tried, at the risk of his own life, to prevent it, ceased his song and disappeared from the premises. The next day it was noticed that he had returned with a companion, and incubation went on, and the young brood were raised as though nothing had happened. This species feeds almost wholly on insects, and their produce, and these are taken in vast quantities, so that it is one of the most useful birds that the gardner or farmer can encourage to settle on their premises. In the early days of May, if the weather is favorable, we first hear the glad some and joyous song notes of the house wren; and these are incessantly continued in the vicinity of its nesting place, from early dawn until the dusk of evening, but when the chilly nights of early September begin to cool the atmosphere, and sink down to frost, the twittering lays cease to be heard, and the little summer tenant departs as silently, and unobserved as it came. When our family first settled in the backwoods of Canada, the house wrens were among the few species that took up their abode near our humble dwelling, and whose notes and actions often sent a thrill of delight to my childish heart, and I well remember with what pleasure I first viewed the bramble-built nest, with its set of little reddish eggs, that a pair of these birds owned in a hollow stump in the garden. Many a change have taken place since then; and often has my thoughts been directed into other channels, but the many hours that I spent among the birds and rambling through the wildwoods, are among the happiest of my early recollections.

And often there, by stream and hill,  
In thoughts and dreams I wander still.

Why have ducks no hereafter? Because they have their necks twirled in this.

Why is a dog with a lame leg like a boy at arithmetic? He puts down three and carries one.



### A Nice Place to Live In.

The entomologist might make himself happy in Morocco, if his enthusiasm rose superior to the weakness of the flesh, though it must be confessed that the locusts would be a scourge to the farming interest. Some Italian travelers, happening to have no taste in that way, suffered and complained bitterly. Exhausted as they were with heat and hard riding, the anxiously expected noonday siesta too often became a matter of form. Hardly had they stretched themselves upon the ground, when they were assaulted, tormented, stung upon every side, as if they had chosen a bed of nettles; caterpillars, spiders, monstrous ants, hornets, and grasshoppers, big, impudent, and determined, swarmed about them. Close by was a monstrous spider's web, spread over some bushes like a sheet hung out to dry. In other places they had warnings of the evils to come, in the ominous buzzing from the long grass. The ants were moving in long black lines, beetles were in bunches, and grasshoppers were thick as flies. It was impossible to secure the tents from the intrusion of monstrous spiders and lizards, and of centipedes half a foot long, while the ordinary domestic bug abounded, and was extraordinarily voracious. Snakes and scorpions were so common everywhere that it seemed a marvel that no one one of the party was bitten by them. As for the locusts, with their innumerable hords, the account of their periodical visitations is appalling. One of the attendants described them with animated eloquence, and from what we gather in confirmation from other authorities, it would be difficult for even an Oriental to exaggerate their horrors. "A black cloud! You can hear the noise from afar off. They have their Sultan, the Sultan Jeraad, who guides them. They cross roads and fields, houses, *duars*, and woods. The cloud grows and grows, and comes and comes, and eats and eats and eats, passes

rivers, passes walls, passes fields; destroys grass, flowers, leaves, fruit, grain, bark of trees, and goes and goes."

### Shrewd Fish Hawk.

When the eagle was chosen as our national bird, some one objected to him that he was a rapacious, thieving bird, who made his living by stealing from fish-hawks. The following story, told in a government report on ornithology, confirms the allegation, and shows how one eagle was punished by a shrewd hawk:

A gentleman who resides near Baltimore, upon one of the small inlets of the Chesapeake Bay, was recently taking a walk near the water's edge, when he noticed a fish-hawk rise from the water with a prize in his mouth, and, after getting a short distance inland, beset upon by an eagle, evidently waiting for a meal, and a quiet spectator of the fishing. Being attacked and compelled to give it up, he dropped it, which the eagle, catching in the air, flew away with, apparently disregarding the pangs of a guilty conscience.

The next day he noticed a repetition of the fishing operation by the hawk, and on the eagle's approach, as before, he promptly dropped it again and disappeared. The eagle caught it, as before, in the air; but strangely, as he thought, let it go, and it fell to the ground. Being generally interested in nature, the gentleman concluded to go up and examine the cause of the unusual conduct of the thieving "Emblem of Freedom," our great North American bird. He did so, and reaching the spot, found the supposed fish a piece of dried manure.

It was the old story of "Revenge is sweet," etc., but at once suggests the question, "Is there naught save mere instinct granted by nature to her creatures?"

Why is a pig in the drawing room like a house on fire? Because the sooner it is put out the better.

### To a Brown Thrush.

BY T. G. LAMOILLE.

"As rich as neck-chains of white pearls,  
Thy wonderful chants unto me!"  
Thus, pout applauded dance-girls;  
Weird singer, such praise befits thee.

Sing blithely, where blossoming rows,  
Sweet-scented, embower endeared place  
Where, hushing the neighborhood, flows  
Thy river of musical grace.

Could language embalm thy rare arts,  
Could print voice thy singing, this page  
Would thrill nature-worshipping hearts  
Till time felt the palsy of age.

Enthroned on yon tall, wind-harp tree,  
Thou warblest thy various tunes,  
Re-echoing songs heard by thee  
In days of lost Mays and lost Junes.

Apollo let thee sip the wine  
Of fabled fount, music's own source;—  
Thou'rt thrilled by the gift most divine—  
Of singing—and curbless its force.

—Inter-Ocean.

### \*Nuthatches of New England.



WHITE-BREASTED NUTHATCH.

(*Sitta carolinenses*.)

The geographical distribution of this species does not appear to have been thoroughly worked out, at least so far as its northern limit of dispersion is concerned. The name does not occur in any of the lists which Allen gives of the birds characterizing the several Faunæ of eastern North America.

In New England the white-bellied nuthatch is a common species of general distribution, probably residing all the year round, and breeding indifferently in any suitable locality.

Numerous local lists which I have examined give the bird as "resident," Dr. Brewer alone remarking, not too intelligibly, that it is in New England a "summer resident, partially resident." It is certainly, however, found in winter,

and in some places appears to be more abundant at that season than in summer.

The nidification is essentially similar to that of the Titmice (*Paridae*), the nest being placed in excavations in trees. The eggs are also similar, being white, more or less thickly and uniformly spotted with reddish brown, but they are larger than those of the chickadee, measuring from .75 to .82 in length, by .56 to .63 in breadth. They are laid late in May or early in June. The food consists chiefly of various insects and their larvæ, which are procured by means not unlike that employed by woodpeckers.

The note is peculiar; it may be likened to the quick pronunciation of the syllables *ick, ick, ick*, in a hollow, guttural tone.



RED-BREASTED NUTHATCH.

(*Sitta canadensis*.)

From its breeding grounds in Maine, New Hampshire, Vermont, and still further north it enters the nether New England States early in October; many pass southward, but numbers remain until the latter part of the following April. It is a rather common, at least not rare bird, both in its winter and summer resorts; and is still more numerous during the migrations. Such appears to be the usual distribution of the species in New England. I have no doubt, however, that the bird actually breeds at times in Massachusetts. About the middle of August, 1874, I found young birds on Cutty Hunk Island, in Buzzard's Bay, near New Bedford; and Mr. Hitchcock, of Ware, Mass., records it as breeding at that place. The nest, eggs, and breeding habits are very similar to those of the white-breasted nuthatch.

\*From Stearn's New England Bird Life, edited by Dr. Coues. Printed by permission of the publishers, Lee & Shepard, and for sale at this office.

### Sparrow Hawk.

(*Pteromys volucella*.)

This little hawk often remains with us all winter, but most of them retire to warmer climates, only to return as soon as the spring welcomes them back again. Oftentimes it may be seen perched upright on a tall pole or on the uppermost branch of a dead tree in some meadow. Occasionally jerking its tail, and all the while those piercing eyes are on the alert, when having sighted the desired object, he darts with a sharp "swish" and most sure aim upon its quarry and bears it away to devour at his leisure. It is a bold and fearless little warrior, and a most skillful hunter, seldom missing its aim, and if he does, he passes on, not deigning to chase or follow up its prey like the larger hawks or buzzards.

The blue jays often tease the sparrow hawk by imitating its notes, which they do in a surprising manner, and, after being insulted beyond forbearance, the hawk seems to suddenly lose its temper and darts upon the most impudent one among them; immediately the tune is changed and the jays go squalling off with a sort of a crest-fallen air, leaving the victor master of the field, and at the same time the privilege of enjoying its appetite.

Its flight is not as some other small hawks, very swift and direct in course, but is irregular, sometimes it will suspend itself in the manner of a fish hawk over some particular place for a few seconds, and then it will pass on again, most likely in another direction.

It does not seem very particular about the location of its nest; sometimes it may be an old crow's nest, a deserted woodpecker's hole, or any knot hole it happens to take a liking to. It seems to prefer the open meadow to any other locality. This is very probably from the fact that mice are more abundant there

than elsewhere. I knew of an instance where a pair of these birds took possession of some dove houses, after killing the pigeons. They laid a set of eggs, with the intention of feasting on the farmer's chickens, but as this was directly opposed to his interests, they soon met their fate. The female lays four or five eggs, and six and seven are sometimes reported to be found. They are spheroidal, and the ground color is of a reddish or pale yellowish brown, blotched all over with reddish brown spots. They measure on the average 1.31x1.14.

### The Flying Squirrel.

In color, size, and shape of the head, this remarkable creature resembles the common rat. It is only found in the woods, and being nocturnal in its habits, it is seldom seen, even by the pioneer, except when, in cutting down timber, he happens to disturb its nesting-place. The habitats of these animals are the hollows of ancient trees, or the deserted nests of some of the woodpecker tribe, in which they make a soft nest of the fibres of dry bark. In these cavities they remain during the daylight hours, and also pass the winter months in a semi-torpid state. The female, when about to give birth to her young, seeks a new abode, where her young remain until they are able to climb the trunks of trees, and in the winter quite a number of them are found occupying the hollow branches of old trees. When disturbed, or when in quest of food or nesting material, they make those wonderful leaps or flights, from which they receive the name of the "flying squirrel." Their wings or flaps are expansions of the skin, extending from the fore to the hind feet—on each side, and spread out when the animal is in the act of leaping from one tree to another, which they do in the distance of 50 or 60 feet, but always in a descending

direction. The tail is flat and bushy, and assists them to perform their remarkable leaps. When the young are about half-grown they are beautifully marked on each side by stripes of black and white. These animals appear to be chiefly vegetarian in their habits, but it is probable that like other members of the squirrel family, they also feed on young birds and other small animals. The teeth are very strong and sharp, and when occasion requires, will cut a passage into a solid tree. The larger species of the owls are probably the worst enemies which the flying squirrel has to fear, for as night is the time when both these creatures are abroad the owl by its more rapid and noiseless flight, can easily capture the squirrel before it is conscious of approaching danger. It is quite probable, owing to their nocturnal wild-wood habits, that these animals are far more numerous than is generally supposed.

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### Summer Work.

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BY J. R. BOARDMAN.

The long cold winter has become a thing of the past, remembered only by the enjoyable hours devoted to arranging and studying the many interesting specimens which had been procured on our summer collecting trips and almost before we are aware of the fact it is spring again and we must begin preparations for this summer campaign. We need not throw aside our museum work yet awhile, but when the labor there becomes a little irksome, we may with profit change our hand and mend our butterfly nets, make trays for our minerals or build new cabinets for our bird's eggs. All these articles are to come in handy and we may save lots of trouble by having them on hand when the season's work opens in earnest.

The robin and some of the other early birds have already arrived, and the bird

lover finds abundant opportunity for studying their habits and noting down the little points which are always eagerly sought by those interested in ornithology, and which make the bird department in the HOOSIER NATURALIST so pleasant and instructing to read. The embryo botanist now has his plant press nicely arranged in one corner of his room, and with collecting box in hand he goes out into the woods and fields after those flowers which characterize the early spring flora and which always are welcome to the botanist. *Epegia repeus* is now found and forms a pretty frontispiece to your collection of plants. Now, too, we see what seems to be the insignificant little caterpillar, carefully crawling across the road, on the other side of which he expects to find some friendly nook where kind nature may aid him in changing his costume and enable him to come forth a beautiful butterfly. The advent of these little fellows is a source of joy to the ever watchful entomologist, who quickly captures them and assigns them to a new berth alongside some dusky hued damsels from other regions.

As the days slip by other birds, plants and butterflies come to take the places of those common in the early spring and the country seems clad with an entirely new dress. In some far off thicket we hear the sweet thrill from the downy breast of some feathered songster whose arrival announces the advent of midsummer, and as we carefully draw nearer to find out his name, we see other proofs that midsummer is indeed upon us, in the *Kalmia glauca*, that proudly lifts its woody stem, surmounted by a tuft of pink blossoms, only to be at once gathered and consigned to the presence of the ever ready arms of the plant press.

But I anticipate too much on my subject. I can give you no plans by which to pursue your summer work, as your methods are undoubtedly as good, and mayhap better, than mine, but let me

urge you not to let a moment go by when you are out collecting, in which you do not try to gain some practical results. Always keep your eyes open for new sights and your ears open for new sounds; little things in themselves perhaps, but productive of great results.

### A Bird's Appetite.

Dr. Wood says: "If a man could eat as much in proportion as a bird, he would consume a whole round of beef for his dinner. The redbreast is a most voracious bird. It has been calculated that to keep a redbreast up to its normal weight, an amount of animal food is required daily equal to the earthworm fourteen feet in length. Taking a man of average weight, and measuring bulk for bulk with the redbreast, I tried to calculate how much food he would consume in twenty-four hours, if he ate as much in proportion as the bird. Assuming a sausage nine inches in circumference to be a fair equivalent of the earthworm, I find that the man would have to eat sixty-seven feet of such sausage in every twenty-four hours. I mention this in order to illustrate the amount of work which is done by insect-eating birds."

Naturalists say that the feet of the common working bee exhibit the combination of a basket, a brush, and a pair of pincers. The brush, the hairs of which are arranged in symmetrical rows, are only to be seen with the microscope. With this brush of fairy delicacy the bee brushes its velvet robes to remove the pollen dust with which it becomes loaded while sucking up the nectar. Another article, hollowed like a spoon, receives all the gleanings which the insect carries to the hive. Finally by opening them, one upon another, by means of a hinge, these two pieces become a pair of pincers, which render important service in the construction of the combs.

### A List of the Winter Birds of the Vicinity of Bloomington, Ind.

BY W. S. BLATCHLEY.

The following list includes the species of birds observed within a radius of five miles of Bloomington, Ind., between the twentieth of November and the twenty-fifth of February, during the past four winters. Brief notes relating to the relative abundance of each species are given.

The absence of lakes, marshes and large streams from the immediate vicinity accounts for the limitation of the list to terrestrial species.

Especial thanks are due to Prof. B. W. Everman, for assistance rendered in the preparation of the list.

The nomenclature and order accords with that of "The A. O. U. Code and Check List of N. A. Birds," recently issued by the American Ornithologists' Union.

Species preceded by an asterisk are known to be bred in the vicinity.

1. (289). \**Colinus virginianus*, Quail, Bob-white. Becoming scarcer each year.

2. (300). \**Bonasa umbellus*, Ruffed Grouse, Pheasant. Rather common in the wooded districts of the Northern and Eastern parts of the county.

3. (310). \**Meleagris gallopavo*, Wild Turkey. Rare. A few are killed each season by hunters.

4. (316). \**Zenaidura macroura*, Mourning Dove. Some remain during favorable winters.

5. (325) \**Cathartes avar*, Turkey Vulture, Buzzard. Absent a few weeks during severe winters. Otherwise a resident.

6. (332). \**Accipiter velox*, Sharp-shinned Hawk. Not common in winter.

7. (333) \**Accipiter cooperi*, Cooper's Hawk. Rather rare and seldom observed in winter.

(To be continued.)

# The Hoosier Naturalist,

Published Monthly at 75 cents, a year.

R. B. TROUSLOT,  
EDITOR AND PUBLISHER.

*Items of interest solicited from young  
Naturalists or Collectors.*

## NOTICE.

1. Copy must be written on but one side of the paper.
2. Advertising is invariably cash in advance.
3. When asking for information a stamp must be enclosed for reply.

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VALPARAISO, APRIL AND MAY, 1886.

THE learned and esthetic professionals of the East are waging war against young collectors, and especially are they indignant at taxidermists and all connected in any way with the slaughter of birds for millinery purposes.

They should have the support and hearty co-operation of every one in their efforts to suppress the killing of our beautiful birds for hat ornaments, but no farther. The taxidermists have their rights, and in a majority of instances should not come under the ban of the Eastern reformers. It is hardly necessary to speak of the young collectors. In our opinion they are all right and should receive proper encouragement. Those who are at the top of the ladder now, should recall their youthful work in this direction, and remember that there must be a *beginning*. Should the young collectors be prevented from pursuing their ornithological study where will we get our ornithologists of the next century? Surely the professors of to-day are not becoming so egotistical as to suppose that there is nothing more to learn in ornithology? Their actions

toward the young collector look a little piggish, and are surely uncalled for. They probably never read Dr. Coues' Field Ornithology,\* where he asks the question: "How many birds of a kind do you want?" and then answer it with "*all you can get*—with some reasonable limitations; say fifty or a hundred, of any but the most abundant and widely diffused species." We would merely suggest to the members of the American Ornithologist's Union that they take a little of their own medicine.

NOTICE TO PUBLISHERS!—Our exchanges are so numerous that we find it necessary to request all carrying our "ad" to mark the wrapper. Many do this already and it saves us a vast amount of extra work.

REMEMBER that any one sending us a club of twenty new subscribers and \$12.00, will not only receive our journal free for one year, but will also receive Coues' New Key of the Birds of North America, which is alone worth \$10.00.

B. W. EVERMAN, of Bloomington, Ind., has recently returned from a collecting trip to Pensacola, Florida, and vicinity. His time was principally occupied in capturing and preserving fish for the university with which he is connected.

THE Taxidermal department, has, of late, been slighted by ourselves as well as our friends. So far as we are concerned, this will not occur again. We would like, however, to have the hearty co-operation of some of the many taxidermists who have recently subscribed.

WE would be pleased to have all Taxidermists who are using American made eyes, favor us with a small order and then compare the goods we send out with those they have been using. For many years we have used the home goods, but on comparing with the Hurst eyes, were compelled to acknowledge the superiority of the latter.

\*Page 27, §17.

WE would like to hear from A. E. Southworth & Co., of Woodstock, Ill.

**CORRECTION:**—In third line of "To a Brown Thrush," "pout" should have read poet.

THE Indiana Academy of Science will meet at Brookville, May 20 and 21. All are invited to be present.

MARCH 26, 1886, R. E. Rachford & Son collected a set of two buzzard eggs. The first of the season for them.

E. L. BROWN, of Durand, Wis., has his museum nearly ready for the public. The latest arrivals are a couple young *ubo maximus*.

SHOULD you receive more than one copy of the HOOSIER NATURALIST, please do not return, but kindly hand it to some friend interested in nature and solicit their subscription.

BUT little interest is being manifested at present, with reference to the reprinting in magazine form, of Nos. 1 and 2 of the HOOSIER NATURALIST.

Unless two hundred, at least, send us their names, agreeing to pay us 15 cents for the first two numbers we will have to abandon the idea.

No. I contains:—

Agassiz in Brazil (poem).

Skins and skeletons.

Village Museums.

The Loon.

How to ship specimens.

The Prairie Dog.

Shepherd Dogs of the Rockies.

The architectural skill of Birds.

Capturing and Preserving Insects.

Editorial—Salutatory and The Reason Why.

Correspondence:

Mute Swan.

The Alligator.

Locusts.

Mocking Birds.

Cure for Snake Bite.

Double Nest of Bluebird containing ten eggs.

Mocking Birds.

Battle Between Bird and Mouse, etc.

No. II contains:—

Coleoptera (poem).

Curiosities of Insect Life.

The Corn Root Worm.

Study of Things.

An old Trapper on Bird Lines.

An Insect with Hot Feet.

An Amusing Scientific Excursion.

Editorial ChitChat.

Correspondence:

Vandalia Bird Notes.

Testimonials.

Horned Toads, harmless.

Florida Mocking Bird.

When the above is all printed in one magazine it will be worth several times what we ask for it, (15 cents), and besides it will complete your file of the NATURALIST.

Should only 200 agree to take this double number it would amount to just \$30.00, which would not entirely pay for the type setting, paper, press work and the work of preparing that small number.

WE have mailed January and February numbers of the HOOSIER NATURALIST to all "Tidings from Nature" subscribers. Thus the majority of subscriptions expired with the March number of this paper. We trust that all receiving this number will renew with us at once. We assure you we shall do our best to make the H. N. as interesting as possible. With the able corps of writers now enlisted we believe we can present as much, if not more, interesting matter than any similar magazine published. Mr. Downs promises to send the chemistry supplement soon, which will be mailed to the "Tidings from Nature" subscribers as per his agreement with you, with this paper. If you cannot afford to subscribe for a year, send us thirty cents (in stamps) for six months. We would be pleased to have you read carefully our "Surprise Party" "ad" on another page. By securing a few new subscribers you can not only get the H. N. free, but a good book also.

## TAXIDERM.Y.

It is our desire to make this department one of the leading features of our paper. Our Taxidermal friends are cordially requested to contribute.

### HOW TO SKIN TURTLES.

For skinning purposes, turtles may be divided into three groups. First, sea turtles, having a moderate sized lower shell, or plastron; flippers, and practically non-retractile neck and legs. Second, turtles which, like the snapping turtle, have a small plastron and partially retractile neck and legs, and lastly, those with a large under shield, and the power to draw the neck and legs under cover. This third group comprises the large majority of turtles and those most difficult to skin. To skin a turtle you *must* have a small saw of some kind. If wealthy you buy a small dissecting saw, which costs twice as much as it ought to. If poor you purchase a hack saw blade, break it off to the right length—about three inches—and fit it to a wooden handle. Draw the temper at one end so as to punch holes for the rivets. If you wish to be luxurious, add to your outfit a pair of bone forceps. These will prove a great convenience in detaching the neck and legs, and they are wonderfully handy in skinning large birds and small mammals.

For a sea turtle, saw through the lower shell on either side, with a knife continue the cut clear around the hinder portion of it. Leave sufficient skin attached to the plastron to enable you to readily sew the edges of the cut together when the specimen is mounted. Continue the cuts towards the shoulders far enough to allow the plastron to be turned forward, thus exposing the interior of the body. Make a cut under each flipper and the last half of the tail. Disjoint and skin the legs, removing by the cut on the underside, what flesh cannot be readily reached from within, and working as far down towards the end of flipper as possible.

Leave all the leg bones attached to flippers. With your bone forceps or an old chisel, separate the hip bone, or pelvis, from the upper shell, and skin the tail, removing the bone. Sever the neck from the body, skin to base of skull, disjoint the neck bones and remove the brain. Scrape out as much flesh back of the eyes as you can. The eyes of *all* turtles must be removed from the outside, care being taken not to cut the eyelids. Carefully remove the small muscle at outer hind portion of jaw; otherwise it shrinks in drying and forms an unsightly depression. Snapping turtles and others with small plastrons, are skinned in the same manner as sea turtles, only it is not positively necessary to make a cut on the under side of the foot. Still this will be found to greatly facilitate turning the legs. Tortoises and other turtles whose legs are concealed beneath a large under shield, can not be skinned by the method just described, owing to the impossibility of sewing up a cut along the edge of the plastron. For these it is necessary to saw out as large a section of the under shell as possible, drawing out the legs to their fullest extent to lessen the danger of cutting through the skin. Turtles of this last class are much the most difficult to skin, but the absence of any unsightly seams after the animal is mounted, repays for the trouble. Poison well around the head and feet, and if possible let the skin soak for two or three days in a bath of salt and alum, the same as that used for mammal skins.

F. A. L.

### TO PRESERVE SMALL BIRDS ENTIRE.

Take strong alcohol and dissolve in it about 1 drachm of corrosive sublimate to every quart of the spirits. Test with a black feather to see that it is not too strong of the sublimate. Soak small birds in this preparation three or four days; then take them out and allow to dry. For a bird the size of a pigeon remove the entrails, wash it clean, and let it remain ten to fifteen days.—*Ex.*



## CORRESPONDENCE.

EDITOR OF H. N.: Your January issue of the H. N., which is, indeed, interesting, is found among our list of exchanges. While I am not a naturalist, I have always taken considerable interest in collecting specimens of various kinds. Two years ago, at Pernambuco, Brazil, I made ready for a hunt, and while roaming over the wilds which surmount this tropical city, I discovered a *cobra de duas cabecas* basking in the sun. The snake was 28 inches in length, and the same thickness throughout, being about an inch in diameter. This two-headed snake had the appearance of a common fishworm, and was about as sluggish, yet, it was told me that when angry it could jump from 12 to 15 feet. The natives have an intense fear of this reptile, and they say its bite makes one blind. On my way to the city I was sincerely warned of its dangerous character by various parties. Not a few of the people there remember Prof. Agassiz's journey in Brazil. An intimate friend of mine, of whom the Prof. makes mention in his "Journey in Brazil," frequently spoke of his accompany this great man in his search for fish.

F. F. ROOSE,

Lincoln Business College, Lincoln, Neb.

In the February number of the H. N. I saw a short note stating that the nest of a black-billed cuckoo had been found in a thorn-apple bush. The location of the nest attracted my attention. In 1881 I found a nest of the yellow-billed cuckoo (*Coccyzus americanus*) in a young honeylocust tree. This bird is one of the shyest and most invisible of birds. It is oftentimes a "disembodied sound" as the naturalist strains his eyes in vain to detect it among the leaves among which it is sure to alight. And yet this bird had chosen this tree, which was quite small and isolated from other trees. I concluded, then, that it had chosen, its

location for the purpose of defense, for the tree was a tangled mass of horrid thorns through which snakes, vermin and other birds would not care to go. I wonder if the cuckoos do not always choose similar places for nests. Has any one else noticed the same thing? I have often noticed that birds of the same kind build their nests in similar places. Sometimes they locate with reference to food supply, secrecy, wants of their young, defense, shelter, etc., and the study of the habits of birds in this respect is always interesting. When a boy noticed a bird, (which must have been a heron or a bittern,) always nesting when possible in some apple orchard. It would leave the water course, where was its food supply, for miles, and nest in an orchard. Why it prefers this location I have always been unable to make out. Several years ago a sea swallow (*Sterna hirundo*) was shot here in town—a wanderer from the ocean. Sea gulls come into this county every spring.

J. C. GREGG,

Brazil, Ind.

## BIRD ARRIVALS AT MILWAUKEE.

Bluebirds and Blackbirds, March 19; Purple Martin, April 13; Barn Swallow, April 10; Hairy Woodpecker, April 1; Redhead, April 3; Golden-crowned Kinglet, April 6;

Yours,

MAX C. FERNEKES.

Between April 14 and 20, Max fell, while climbing for a nest in a barn, and broke his leg. We extend our sympathy and best wishes for his speedy recovery.

EDITOR H. N.: A few days ago, while sitting in front of the hotel where I was stopping, I noticed a robin building a nest in a tree in front of the place, and was told that it had built in the same place for several years. The next day some English sparrows came and drove the robins away and then took possession of the nest and commenced to carry up material to complete it. When I saw it last it was as large as a hat and they were still carrying up straw.

Yours,

R. F. C.

Kalamazoo, Mich., May 2, '86.

### Bird Migrations.

As is generally known to those interested in ornithology, the American Ornithologists' Union, about two years ago, made arrangements for a systematic study of the migrations of our birds throughout North America. A committee on migration was appointed, the territory to be studied was divided into districts to each of which was assigned a superintendent whose duties are to secure the services of local observers, receive their reports, etc.; answer such questions as they may ask concerning the work. The facts to be regarded are, chiefly, those mentioned on page 131 of the March number of the HOOSIER NATURALIST. Indiana and southern Michigan constitute one district, the superintendent of which is B. W. Everman, Indiana University, Bloomington, Ind. About thirty excellent observers have already begun the work in this district, but it is very desirable that this number be as greatly increased as possible. It is, therefore, urged that all persons in Indiana or Michigan, who are willing to do what they can in this work, begin recording their observations at once. Circulars of instruction, blanks for reports, etc., will be furnished on application to the superintendent, who will be glad to hear from all who will "lend a helping hand."

## MINERALOGY.

Conducted by THOMAS S. ASH, 126 Chestnut Place, West Philadelphia, Pa., to whom all articles pertaining to the subject should be addressed.

We offer a prize for the April and May issue of a fine specimen of Endlichite from Lake Valley, New Mexico.

Endlichite crystallizes in hexagonal prisms with pyramid and slightly developed, a second more acute pyramid; both

the prismatic and pyramidal planes are strongly striated through oscillation of the pyramidal planes with the prismatic. Color, orange yellow to whiteish. Specific gravity 6.864.

An analysis by Prof. F. A. Genth, Ph. D., yielded Cl-2.45, Pb O-73.48, Ca O-0.34, As<sub>2</sub> O<sub>5</sub>-13.52, V<sub>2</sub> O<sub>5</sub>-10.98, P<sub>2</sub> O<sub>5</sub>-trace.

Named in honor of Dr. F. M. Endlich, superintendent of the Sierra Mines, at Lake Valley, New Mexico.

Described by Prof. F. A. Genth, Ph. D., of the University of Pennsylvania.

Questions for April and May:

1. Give ten examples of dimorphous, and five of trimorphous minerals.
2. Name a nitrate found in nature which is insoluble.
3. Who was the father of mineralogy, and of geology?
4. Give a ready test for double refraction.
5. Name a definitely crystalized borate of lime, and when and by whom discovered.
6. Name a mineral which is prisnatically developed in the direction of the braehydiagonal axis, where found, give composition.

UNITAHITE is an asphalt-like hydrocarbon from the Utah mountains, Utah. It is obtained in masses several inches in diameter, brittle and breaking with a conchoidal fracture. Its hardness is 2 to 2.5, specific gravity 1.065 to 1.075; the color black and lustrous. It fuses easily in the flame of a candle, burning with a brilliant flame like sealing-wax and like this giving a clean, sharp impression of a seal. It dissolves in a heavy petroleum, also in oil of turpentine when warm, but not by ordinary alcohol nor by either when in fragments. It forms with wax a hard black mixture resembling burnt wax.

PICOTITE, a chrome spinel, has been found in the basalt of Mt. Shasta, Cal.

# THE

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## A List of the Winter Birds of the Vicinity of Bloomington, Ind.

BY W. S. BLATCHLEY.

8. [337]. *\*Buteo borealis*, Red-tailed Hawk. The most abundant resident among the hawks.

9. (399), *Buteo lineatus*, Red-shouldered Hawk. Rather common.

10. [349], *Aquila chrysaetos*, Golden Eagle. Rare winter visitor. There are two specimens in the museum of the Indiana University which were taken here.

11. [352]. *Haliaeetus leucocephalus*, Bald Eagle. Rare, but more common than the preceding. Several specimens which are in the museum were taken here.

12. [360]. *\*Falco sparverius*, Sparrow Hawk. Seldom observed in winter. Quite common in summer.

13. [366], *Asio wilsonianus*, Long-eared Owl. Rare. One taken in a large pine grove west of Bloomington, by Prof. Eversman, January 30, 1883.

14. [368]. *\*Syrnium nebulosum*, Barred Owl. Quite common.

15. [373], *\*Megascops asio*, Screech Owl. Common.

16. [375]. *\*Bubo virginianus*, Great Horned Owl. Common in deep, damp woods.

17. [376], *Nyctea nyctea*, Snowy Owl. Doubtful winter visitor. One reported to have been seen some years ago.

18. [390]. *\*Ceryle alcyon*, Belted King-

fisher. Resident except in severe winters when absent for a few weeks. Not common.

19. [393]. *\*Dryobates villosus*, Hairy Woodpecker. Quite common.

20. [394], *\*Dryobates pubescens villosus*, Downy Woodpecker. Common. Often seen in city.

21. [402], *Sphyrapicus varius*, Yellow-bellied Woodpecker. Not common. I saw one in the city on the 29th of December, 1885. Common during migration. Probably breeds here.

22. [405] *\*Ceophloeus pileatus*, Pileated Woodpecker, Logcock. Not common. Occasionally seen in heavy timber. Three specimens were taken in 1885, one of which, a fine male, killed on the 24th of December, I have in my collection.

23. [406]. *\*Melanerpes erythrocephalus*, Red-headed Woodpecker. Not common in this county in winter. Fifteen or twenty were seen by me in Putnam county on the 23d of December, 1884.

24. [409]. *\*Melanerpes carolinus*, Red-bellied Woodpecker. Common in heavy timber.

25. [412]. *\*Colaptes auratus*, Flicker, Yellowhammer. Common. Gregarious in winter.

26. [474b], *Otocoris alpestris praticola*, Prairie Horned Lark, Shore Lark. Rather abundant. In flocks in old pastures and meadows, sometimes accompanied by Lapland Longspurs. "Breeds in Carroll county, Ind."—Eversman. Seen here as late as April 17th, and likely breeds here sparingly.

27. [477]. *\*Cyanocitta cristata*, Blue

Jay. Common.

28. [488], \**Corvus americanus*, Crow. Rookery or roost in pine grove west of city.

29. [501], *Sturnella magna*, Meadow Lark. A few remains every winter. Four or five were seen by Prof. Everman on the 16th of February, 1883.

30. [511b], \**Quiscalus quiscula vneus*, Bronzed Grackle, Blackbird. Not common in winter. One or two remained in the city during the past winter.

31. [517], *Carpodacus purpureus*, Purple Finch. Not usually common, but very much so in the winter of 1882-3.

32. (521) *Loxia curvirostra, minor* Red-Crossbill. Irregular winter visitor. Not noticed in this county prior to Feb. 10th, 1883, when several were taken by Prof. Everman. Plenty during the winter of 1884-5, but only a few were seen last winter. Found only in pine groves, their bills being suited for extracting the seeds from the cones.

33. [522], *Loxia leucoptera*, White-winged Crossbill. Rare. This species was first observed in this county Feb. 6th, 1883, when about fifteen were noticed in the city by Prof. Everman, several of which were taken. None have been seen since that winter.

34. [528], *Acanthis linaria*, Redpoll. Rare. One was seen by Prof. Everman, Jan. 30, 1883.

35. [529], \**Spinus tristis*, American Goldfinch. Abundant.

36. [533], *Spinus pinus*, Pine Finch. Pine Siskin. Not common, but some are seen almost every winter in pine groves. Most abundant in early spring.

37. [536], *Calcarius lapponicus*, Lapland Longspur. Rare winter visitor. Two were taken by Prof. Everman, Feb. 2, 1883.

38. [E. S.], \**Passer domesticus*, English Sparrow. Introduced from Europe. Too common in the city and spreading to the country.

39. [559], *Spizella monticola*, Tree

Sparrow. Abundant.

40. [567], *Junco hyemalis*, Slate-colored Junco, Snow Bird. Perhaps the most abundant winter resident.

41. [581], \**Melospiza fasciata*, Song Sparrow. Abundant.

42. [584], *Melospiza georgiana*, Swamp Sparrow. "Not very common in winter." —Everman. I, myself, never saw it before March 19.

43. [587], \**Pipilo erythroph thalms* Towhee, Chewink. Not common in winter. A few are sometimes seen in company with cardinal grosbeaks.

44. [593], \**Cardinalis cardinalis*, Cardinal Grosbeak, Red Bird. Quite common in suitable, sheltered localities.

45. [619], \**Ampelis cedrorum*, Cedar Bird, Cedar Wax-wing. Rather common. Gregarious.

46. [622a], *Lanius lud vicianus excubitorides*, White-rumped Shrike. Rare.

47. [655], *Dendroica coronata*, Myrtle Warbler, Yellow-rumped Warbler. Not common, although some are seen almost every winter.

48. [718], \**Thryothoru ludovicianus*, Carolina Wren. Rather common in the underbush along the creeks.

49. (722), *Troglodytes hiemalis*, Winter Wren. Not common. Sometimes seen in deep ravines; rather abundant during migration.

50. (726), *Certhia famili-iris americana* Brown Creeper. Not common in winter. Common migrant, but seldom noticed on account of small size and brown color.

51. (727), \**Sitta carolinensis*, White-breasted Nuthatch. Abundant.

52. (728), *Sitta canadensis*, Red-breasted Nuthatch. Not common in winter. Sometimes found in pine grove above mentioned. Four were taken there on the 25th of November, 1885, and one on the 23d of Feb. 1887.

53. (731), \**Parus bicolor*, Tufted Titmouse. Common.

54. (735), *Parus atricapillus*, Black-capped Chickadee. Not common winter

visitor.

55. (336), \**Parus carolinensis* s. Carolina Chickadee. Not common in winter. Usually seen with Titmice.

56. (748), *Regulus satrapa*, Golden-crowned Kinglet. Not common. Most frequently seen in pine grove above mentioned.

57. (749), *Regulus calendula*, Ruby-crowned Kinglet. Rare. A few taken almost every winter in the same grove.

58. (761), \**Merula migratoria*, American Robin. A few remain during the winter in secluded places. I have seen them in December and on Feb. 14. and Prof. Everman records having seen about five hundred on Feb. 16, 1883.

59. (766), \**Sialia sialis*, Blue Bird. Resident in small numbers during mild winters.

W. S. BLATCHLEY

Indiana University, May 7, 1886.

### Botanical Oddities.

The writer of these lines has always kept his eyes especially bent upon those curiosities in nature which the uninitiated call "freaks" and "sports", and he has collected a vast amount of miscellaneous material in the form of notes, which he hopes to formulate sometime soon into more definite shape, and in the meantime he presents to the readers of this magazine a few choice cuts and tidbits from the mass, hoping that the general result will be good.

By way of preface, let me remark that there is no such thing as "freak" in natural phenomena, the least variation in organic or inorganic form being just as much subject to Law as is the movement of the earth in its orbit. \* \* \*

Some time since there came to my notice a rather remarkable case of parasitism in plants, a case which can hardly be truly called parasitism, but is only so designated because of the want of a more fitting name. This case was located on a farm not far from my home and was

nothing other than a specimen of the common "horse-weed", so-called, of unusual size and in a perfectly normal condition, and upon this, about half-way from the root to the top, was a large individual of the species "rag-weed", firmly grafted, in full growth and apparently perfectly contented.

The specimen was taken under zealous care to await developments, but one of the "farm-hands", whose mind was directed to nothing save the extermination of weeds of all manner and kinds, ruthlessly destroyed it, thus nipping in the bud some revelations which would possibly have been of much value to naturalists.

The probable cause of this curiosity was a seed dropped in the fork of the branches by the wind or a bird, and which had sprouted and struck root into the juicy stalk of the "horseweed."

During the coming summer I intend to experiment upon the suggestion thus given—to insert the seeds of hardy-growing vines, etc., into the stalks of large and juicy plants, and shall expect some interesting developments in the way of variation in form of flowers, etc.

I have sometimes found plants of red-field clover bearing white flowers, which exactly resembled the red ones in all else save color.

It has been supposed by some that this peculiarity could be propagated from seed, but I discredit that; for, as is well known, a head of clover will not seed if left to itself, but must be fertilized by the pollen of another head, (which fertilization is accomplished in nature by bees which visit the flowers for honey, carrying pollen from one flower to another) and if these white heads were to be fertilized by the pollen from a red head the result would be a reversion to the original red-flower-bearing plants.

The same is true of clover plants which bear a large number of leaves with four or more leaflets,—this feature cannot be propagated from seed.

(To be continued.)

### Birds.

Every form which the most lively fancy could create, and every hue which the imagination could conceive are to be found in the feathers of birds.

To no other creature has such varied tones been granted for giving utterance to different feelings; hunger, fear and dread of danger, desire for society or longing for its mate, are expressed by a variety of notes which make a language intelligible, not only to birds of the same species, but often to other tribes. The gift of song is given to the male birds only and their "notes are mostly an expression of love." The voices of all carnivorous birds are observed to be harsh and hideous; probably so made in order to warn those birds and animals upon which they prey, to secure themselves from danger. Near the equator the birds are remarkable for their brilliant and varied plumage, but their voices are usually harsh and discordant.

The bills of every species of bird are modified according to the nature of the food it subsists upon.

Birds which live upon insects, seldom have horned bills, but usually short and slender. Bills of birds which take insects flying, are remarkable for their deep division which enables them to gape widely. Birds living upon seeds have short, strong bills, and birds of prey have hooked, strong and sharp bills.

The smallest species of hummingbird (*Mellisuga minima*) is only about one inch and a quarter in length, and weighs about twenty grains, while the largest species of ostrich (*Struthio camelus*) is from seven to nine feet high, from head to the ground.

A species of flamingo forms its nest of mud in the shape of a hillock, with a cavity at the top, and of such a height as to admit of the bird's sitting on it, or rather standing, her long legs being placed one on each side at full length.

A very curious nest is that of the tailor bird (*Sylvia sutoria*). It is composed of two leaves, one being fixed to a living leaf as it hangs from the tree, by sewing both together like a pouch; this is open at the top, the cavity being filled with fine down.

The nest of the humming bird is so placed on a small limb as to exactly resemble a knot, when viewed from below.

The vulture, (*Genus gypsetos*) is the largest bird of prey in the old world.

The rifle bird is regarded as more splendid in plumage than any other Australian bird.

The American raven may be taught to fetch and carry like a spaniel, and even to speak like a parrot.

The stormy petrel, when in pursuit of food, suspends itself by extending its wings and appears to run on the surface of the waves.

When the condor has not space to run it cannot give its body sufficient momentum to rise from the ground.

The black skimmer skims its food from the surface of the water.

The tuscan throws its food into the air and catches it as it descends and thus swallows it with great facility.

Being incapable of either swimming or diving, the frigate bird manages to satisfy its natural appetite for fish, by a system of highway robbery. The common mode is for it to soar above its victim, and then plunging down, to strike on the head with its beak,—the result being an instant disgorging of the day's fishing, which is secured by the robber before it reaches the water.—*Snyder*.

### The Productive Rabbit.

The rabbit is probably the most productive of the whole rodents; a single pair may be answerable for a population of half a million within five years. Originally natives of Spain, the rabbits once multiplied in that country, as well as in some of the islands of the Mediterranean, in such an alarming manner that the people appealed for military aid to assist in their destruction.

### The Scarecrow.

The farmer looked at his cherry tree,  
 With thick buds clustered on every bough  
 "I wish I could cheat the robins," said he,  
 "If somebody only would show me how!"

"I'll make a terrible scarecrow grim,  
 With threatening arms and with bristling  
 head;  
 And up the tree I'll fasten him,  
 To frighten them half to death," he said.

He fashioned a scarecrow all tattered and  
 torn—  
 Oh, 'twas a horrible thing to see!  
 And very early one summer morn,  
 He set it up in his cherry tree,  
 The blossoms were white as the light sea-  
 foam,  
 The beautiful tree was a lovely sight;  
 But the scarecrow stood there so much at  
 home  
 That the birds flew away screaming in  
 fright.

But the robins, watching him day after day,  
 With heads on one side and eyes so bright,  
 Surveying the monster, began to say,  
 "Why should this fellow our prospects  
 blight?"

"He never moves round for the roughest  
 weather,  
 He's a harmless, comical, tough, old fellow,  
 Let's all go into the tree together,  
 For he won't budge till the fruit is mellow!"

So up they flew; and the sauciest pair  
 'Mid the shady branches peered and  
 perked,  
 Selected a spot with the utmost care,  
 And all day merrily sang and worked.

And where do you think they built their nest?  
 In the scarecrow's pocket, if you please,  
 That, half concealed on his ragged breast  
 Made a charming covert of safety and ease!

By the time the cherries were ruby-red,  
 A thriving family hungry and brisk,  
 The whole long day on the ripe fruit fed,  
 'Twas so convenient! they saw no risk!

Until the children were ready to fly,  
 All undisturbed they lived in the tree,  
 For nobody thought to look at the guy  
 For a robin's flourishing family.

—Selected.

### Fabulous Animals, No. 3.

BY G. DALLAS LIND, M. D.

The oldest Greek historian, Herodotus, (b. 484, B. C.) described the phenix as a sacred bird of Egypt. The people of

Heliopolis said that it came once in 500 years from Arabia, bearing its father embalmed in a ball of myrrh and buried him in the temple of the sun. Herodotus did not believe this story, but says he saw a picture of the bird represented with golden red plumage and resembling an eagle in size and shape. This account of Herodotus was repeated with variations by many writers. Pliny, the Roman naturalist, says there is but one phenix at a time and at the close of his long life builds himself a nest with twigs of cassia and frankincense, in which he dies; from his corpse is generated a worm which grows to be the young phenix. The young bird lays his father on the altar of the sun. Zacitus says he burns his father.

The following is a version of the account is given by Ovid, the Latin poet: "Most beings spring from other individuals; but there is a certain kind which reproduces itself. The Assyrians call it the phenix. It does not live on fruits or flowers, but on frankincense and odoriferous gums. When it has lived 500 years it builds itself a nest in the branches of an oak, or on top of a palm tree. In this it collects cinnamon, spikenard and myrrh, and of these materials builds a pile on which it deposits itself, and dying, breathes out its last breath amidst odors. From the body of the parent bird, a young phenix issues forth, destined to live as long as its predecessor. When this has grown up and gained sufficient strength, it lifts its nest from the tree (its own cradle and its parent's sepulchre) and carries it to the city of Heliopolis, in Egypt, and deposits it in the temple of the sun."

Another Greek writer says that the bird casts himself on the ground and receives a wound, from the matter of which, the new phenix springs.

The commonest form of the story is that in which the phenix is described as an Indian bird which lives in air for 500 years, then flies to Heliopolis, his wings laden with spices, enters the temple and

is burned upon the altar, and the next day the young bird is feathered and on the third day his wings are full-grown and he salutes the priest and flies away.

The period of reappearance is not always given as 500 years. 1461 and 7006 years are also given. Tacitus says it appeared first during the reign of Sesostrius, then under Amasis, and again under Plotomy, and again in 34. A. D. The last interval was so short that its genuineness was questioned.

The Arabs confused the story of the phenix with that of the salamander, another fabulous animal which will be described in a future article. The famous roc, or rufh of the Arabian Nights, and of Marco Polo's work has also been described as having some of the features of the phenix.

The word phenix does not occur in the Bible, but the new version gives it as a marginal reading for "sand" in the following passage: "Then, I said, shall I die in my nest and multiply my days as the sand."—Job xxix, 18. It is the opinion of many commentators that the Hebrew word *chol* here rendered sand should be translated phenix. The passage certainly has much more meaning when so rendered.

Greek and Roman writers speak of the phenix as a symbol of the sun. Egyptian books speak of a bird called bennu, as a sacred symbol of the worship at Heliopolis, city of the sun. The hieroglyphic figure of bennu is, however, that of a heron. The gorgeous colors attributed to the phenix would not be inappropriate to the purple heron (*Ardea purpurea*). How Herodotus could have described the picture he saw as resembling an eagle in shape and size, if the picture was the Egyptian hieroglyphic of the bennu is unexplainable. The golden and red color may have been simply representatives of the colors of the sunrise and have nothing to do with the colors of the sacred bird.

One account of the phenix is that after

living 500 or 600 years in the wilderness it builds itself a funeral pile of sweet wood and aromatic gums and fires it with the waftings of its wings and thus burns itself, and from the ashes another phenix rises.

The early christian writers refer to the phenix in their accounts of the resurrection.

The Phœnicians gave the name phenix to the palm tree because when burned down to the ground it sprouts up fairer than ever. The name has been applied to various plants, probably for similar reason. It is also the name of one of the constellations of stars and is applied to a musical instrument in use among the ancients.

### List of Chicago Butterflies, Collected in 1885, and now in my Cabinet.

BY J. W. READ.

#### PAPILIONIDÆ.

##### PAPILIONINÆ.

Genus *Papilio*, [Linn.].

12. *P. asterias*, [Fab.], common.

13. *P. troilus*, [Linn.], rare. I only secured one specimen all summer.

##### Pierinæ.

Genus *Pieris*, [Schränk.].

38. *P. rapæ*, [Linn.], very common.

Genus *Colias*, [Fab.].

68. *C. philodice* [Godt.], very common.

##### Nymphalidæ.

##### Danainæ.

Genus *Danais*, [Late.].

94. *D. archippus*, [Fab.], one of our commonest butterflies.

##### Nymphalinæ.

Genus *Argynis*, [Fab.].

101. *A. idalia*, [Drury], common.

108. *A. aphrodite*, [Fab.], common.

141. *A. myrina*, [Cram.], common.

152. *A. bellona*, [Fab.], common.

Genus *Phyciodes*, [Doub.].

190. *P. tharos*, [Dru.], common.



Genus *Grapta*, [Kirby].

207. *G. interrogatious*, [Fab.], uncommon.

Genus *vanessa*, [Fab.].

219. *V. antiopa* [Linn.], common.

Genus *pyrameis* [Doub.].

223. *P. huntera*, (Fab.), rare. I only secured one specimen all summer, although I saw several others, but they flew wild and I missed them.

224. *P. cardui* (Linn.), common.

*Satyrinae*.

Genus *Neonympha*, (West).

258. *N. eurytris*, (Fab.), rare. I only got one specimen of this species all summer, losing three or four on account of their flying wildly.

#### LYCÆNIDÆ.

#### LYCÆENINÆ.

Genus *Chrysophanus*, (Doub.).

385. *C. thoe*, (Bd. Lec.), rare. I only found this fly in one place all summer.

Genus *Lycæna*, (Fab.).

432. *L. pseudargiolus*, (Bd. Lec.), uncommon.

I have marked these species common or rare, accordingly as I observed them in the neighborhood of my home, and some species which were rare near home were doubtless plentiful at some other place a few miles away.

### Fornicadæ Ants.

#### SELECTED AND REVISED.

Ants and bees are the busiest members of the insect community about us. We all admit the usefulness of bees, but are too slightly acquainted with the work of our little under-foot friends to credit them with their proper share of our esteem.

Huber, the great French naturalist, has described at some length the day's work of a single ant shown by comparison how much a human being would have had to accomplish in proportion to its size. The result would not prove interesting to a person constitutionally tired. The ants, themselves, seem to be discouraged some-

times at the amount of work before them, but instead of giving up, they organize into bands of raiders, attack a neighboring community, and after a hard fought battle in which they come off victorious, return to their homes in perfect order, taking with them the workers and young of their foes as slaves. It is claimed that they act in these engagements very intelligently and in a perfect military manner. The most curious feature, probably, is that the attacking party are always the victors. An ant hill is an interesting study. On exposing an ant town by raising a stone or log, a little city with street, thoroughfares, squares, etc., can be traced. Lying here and there are little white cylindrical bodies like grains of wheat and sometimes mistaken for such. These are sacs which contain the young ants or grubs. They are carefully guarded by the ants and are the first things removed to a place of safety in case of danger.

The eggs laid by the queen ant on the sand are hatched by the warmth of the sun. The grubs are fed and grow, and finally shut themselves up in sacks, like the cocoons of beetles.

One word about the food of ants, concerning which many people are mistaken. Ants do not lay up a store of food for winter; like almost every form of animal life, they remained dormant during the winter months. Ants do not eat grain, but are fond of dead ripe fruits, of substances juicy or containing sugar, and of carrion. They sometimes kill and eat smaller insects. The *aphides*, or plant lice, are the ant's cows, the louse giving one crystal drop of liquid, which the ant drinks.

It may be justice to state that all the ants are not industrious; that of the three kinds of ants, males, females and workers, the latter two do all the work, while the males, like some of their brothers in the higher scale of creation, are lazy and quite worthless. Of the many other curious and very interesting facts to be learned concerning the common ant, and of the stranger things concerning the same family in the tropics, where all kinds of reptile and insect life are extravagantly developed, many volumes, even a whole library might be written.

## Maine Notes.

GEORGE H. BERRY.

No. 528. Common Redpoll (*Acanthis linaria*). Common. Male of a cardinal red, mixed with brown. Female brown, beak shaped like that of a grossbeak, nest in fir and spruce trees. Nest composed of grass, moss, etc. Eggs four or five, bluish green, spotted and splashed with lilac, purple and brown. I have seen eggs marked so nearly like those of the chipping sparrow that except being larger they were undistinguishable. My experience is that the eggs, both ground and spots, fade upon exposure to the light. Size .64x.52. Nest June and July.

No. 529. Am. Goldfinch (*Spinus tristis*). Common. Local names, beet-bird, thistle bird, wild canary, yellow bird. Golden yellow, with head, wings and tail jet black. Nest built of grass, wool, etc., and lined with thistle down, usually in apple tree. Eggs 5, greenish white, unspotted or very rarely specked with faint brown. Size .65x.52. This bird has been tamed and makes a good cage bird. Nests in July and occasionally in August.

No. 611. Purple Martin (*Progne subis*). The largest of our swallows. Usually nesting in houses and dead trees. They make a cry much like that of a young chicken when lost. They are decidedly pugnacious, giving chase to hawks, crows, doves or any larger bird. Eggs, in color, pure white, unspotted. Size, .95x.68v. Number in set 4 to 6. Nest in June.

No. 612. Cliff Swallow (*Petrochelidon lunifrons*). This bird is called the cave swallow with us and is not very common. About a dozen pair breed here annually. A few years ago over a hundred could be found, but being disturbed, they have gone elsewhere. They resemble the barn swallow, the only difference being the square tail instead of forked, and white breast. Eggs usually five, white, spotted

with russet. Size, .76x.60v. Nest in June. The nests are usually retort shaped and placed under eaves of barns, houses and rocky cliffs.

No. 613. Barn Swallow (*Chelidon erythrogaster*). The barn swallow has a blue back and wings and reddish breast, with a long forked tail. They build a boat shaped nest of mud attached to the rafters of barns and outbuildings. Eggs 4 to 6, white, spotted with russet brown. Size, .78x.60v. They cannot be told with certainty from those of the cliff swallow. Nest in June.

No. 614. Tree Swallow (*Tachycineta bicolor*). Quite common. Nests in bird boxes and holes in trees. Eggs 5 or 6, pure white, unspotted. Size .80x.54. One has nested in jot of church here for the last four years. Last year one nested in the waste pipe of mill three miles from here. Bird blackish-brown, with white breast and belly. Nest in June.

No. 616. Bank Swallow (*Clivicola riparia*). Abundant. Nesting in bank of river. The bird burrows a hole from two to four feet horizontally in the bank at the end of which it makes its nest of a few straws, laying 4 or 5 pure white, unspotted eggs. Size .72x.46. Nests in May.

No. 619. Cedar Waxwing [*Ampelis cedrorum*]. Abundant. The cherry-bird of the farmers. Body fawn color, ends of secondaries have a yellow waxy horn, whence the name of waxwing. In the male this is red in color. The bird has a crest on head and in shape and style somewhat resembles the blue jay. Nests in limbs of trees in any spot. Nests quite bulky, composed of grass, etc. Eggs 4 to 6, in color, ranging from clay to greenish olive, spotted with square spots of purple and black. Size, .85x.65v to X. Nests in latter part of June and July. Two eggs from one set measured .90x.65 and 80x70.

No. 629. Blue-headed Vireo [*Vireo solitarius*]. Extremely rare I never found but one nest. This was some ten feet from the ground in a hemlock. The nest

was built of cedar bark with but little of the usual birch bark used by the vireos. The eggs were white, with numerous red and reddish brown dots and blotches, nearly the size of the warbling vireo and closely resembling them. The bird was of a greyish olive on back and wings with two light bars on each wing and a slatey blue cap on head. Size nearly the same as the chestnut side warbler but longer. The bird was identified by a prominent taxidermist. I did not measure the eggs as they were nearly hatched. This nest was in deep swampy woods. June 12, '85.

No. 631. White-eyed Vireo, (*Noveboracensis*). The most common Vireo nesting in our locality. They are not so shy as the rest of the family, nesting in bushes, apple trees and shade trees near dwellings, one nested last year in a maple limb directly over the door of a house not far from me. One peculiarity of this bird is the partiality shown for its nests by the cowbird. I never found but one nest that did not contain their eggs. No. of eggs in a set, 5. Once I found a set of six. The eggs are usually .85x.63, and in color white, with the larger end specked and dotted with red brown and purple markings. Nests are built from 2 to 12 feet in height, composed of birch bark, lined with pine needles, feathers, etc. Nest in June.

### New Mexican Humming Birds.

My first acquaintance among the humming birds of New Mexico was the broad-tailed, which I found in the Northern part of the Territory at Crinarron, in Colfax county, where it is quite abundant along the Crinarron river and other streams running from the mountains to the plains. The largest of the humming birds found there being some 4 inches in length, with the wings 2 inches; It is also one of the handsomest. The general plumage of the male is a brilliant green with much white below, the gorget a purplish-red and of great brilliancy.

The wings and tail are dusky-purplish; the outer primaries much attenuate; much of the tail feathers are edged with rufus at the base; the outer feather is very narrow, the others broad. The female lacks the gorget and has much rufus below in place of the green. They are very abundant all along the higher peaks and ridges of the Rockies at an elevation of from 7,000 to 10,000 feet, and I have found them in goodly numbers about the Las Vegas, Hot Springs, and at Santa Fee, at which places they breed. In the Southern portion of the Territory they are less common, though I have occasionally taken specimens there.

At Santa Fee and Las Vegas the rufus-backed humming bird is found associated with the broad-tailed, and is nearly its equal in size, being  $3\frac{1}{2}$  inches in length; wing  $1\frac{1}{8}$ ; tail  $1\frac{1}{8}$ . The male is cinnamon-rufus above, below and on the tail, with some traces of green above, particularly on the crown. The gorget is red, with a white collar behind. The female has more or less green on the upper parts, with traces of the red gorget, the tail barred with black and white. I have found them most abundant in the mountains near Silver City, in Grant county, at the entrance south of the Territory. In September, 1884, I camped for some time near the top of the divide, some 15 miles from Silver City, at an elevation of some 9,000 feet. Our tent was pitched in a canon, near a small stream of water, and among the towering oaks, pines and hemlocks. Here was an abundance of flowers of every description, and flitting hither and thither among them were the rufus-backs, literally by the hundreds. The breeding season was over and the young birds mingled with the old. They soon became accustomed to our presence and would dart about us as we sat near the tent at work, or at our meals now and again alighting on some twig to watch us curiously for a moment and then away like a flash of light.

(To be continued.)

# The Hoosier Naturalist,

Published Monthly at 60 cents, a year.

R. B. TROUSLOT,  
EDITOR AND PUBLISHER.

Items of interest solicited from young  
Naturalists or Collectors.

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VALPARAISO, IND., JUNE, 1886.

## LAST CALL.

Again we beg to call your attention to the reprinting of Nos. I and II of the HOOSIER NATURALIST. We have already heard from several of our readers, yet not enough to warrant us in starting the printers at work. Unless 200 at least, agree to pay fifteen cents for the two numbers we will be compelled to abandon the idea, though we should very much regret to disappoint those of our friends who have already responded. And we wish to thank them for the kindly words of encouragement and the many good wishes so generously bestowed upon us.

SHOULD any of our natural history friends desire to discontinue their papers we would be pleased to hear from them.

THE few remaining natural history journals are evidently doing well, if we may judge from their appearance. Success to you, brother workers.

OLIVER DAVIE has favored us with a copy of his new Egg Check List. It is a genuine treat and one that we heartily appreciate. Please accept our thanks. See "ad" elsewhere.

THE nomenclature used in the H. N. will, hereafter, be after the A. O. U. Code. We neglected to speak of this last month and it has puzzled several of our younger friends.

WE are in receipt of several new and valued exchanges from England, France and Canada. The publishers will please accept our thanks. We will devote space to a generous review next month.

OUR thanks are due to a friend for four young partridges, *Bonasa umbellus*. The little fellows exerted themselves to escape by flight. They were reconciled somewhat by being confined with a motherly domestic hen, who immediately appropriated them as her own.

RECENTLY we received another fine loon *Urinator imber*, which, becoming entangled in some fish nets on the shore of Lake Michigan, was easily captured. He refused food and when disturbed uttered its peculiarly wierd cry, so familiar to all living in the neighborhood of water.

It will pay you to read the advertisements as well as other matter in this issue. We would especially call your attention to F. M. Gilham's column "ad" appearing now for the second time, on the second page of cover. We have found Mr. Gilham very courteous and gentlemanly. You should send for his illustrated price list.

Mr. Marsh, formerly of Silver City, N. M., now of Los Angeles, Cal., has a page "ad" appearing also for the second time. If you want good skins, at remarkably cheap rates, read his "ad" and write to him at once.

Of course if you are going to go to school you will turn to the last cover page of the NATURALIST and read *carefully*, the entire column. We have attended this school over two years, and can not say too much in its favor. We believe it to be the best as well as the largest Normal in the U. S. Send for catalogue.

OUR correspondence columns will be found quite interesting this issue.

D. J. HICKEY is preparing a Collectors Directory which he proposes to make 6x9, of about 100 pages. He charges 20 cents for inserting card. He writes, "In addition to the value of this directory as a guide to exchangers, the articles which will be given in the way of hints, receipts, notes, etc., will make it worth five times the cost. See "ad" elsewhere.

THE following MSS. have been received: "Fossil Birds,"—Dr. Benj. F. Mason. "The Kingbird,"—D. Y. A. D. "Dakota Migration Notes from My Note Book of 1885,"—Chette L. Cheney. "On Some Carabidæ,"—J. D. Sherman, Jr. "Notes on the Common Crow,"—T. L. Burns. "The Advance of Science,"—Chas. D. Pendell. "Peculiar Crow's Nest,"—W. H. F. Many thanks.

THROUGH some unexplainable cause the article, "Meadow Mice," by Amos W. Butler, in last issue, was badly mutilated. The following are the corrections as noticed by the author. "*Arvicolin*," (first column) should have been "*Arvicolinæ*." "*A. susterus*," (second column) should have been *Arvicola austerus*. "*synaptomys cooperi*," (third column) should have been *Synaptomys cooperi*. "*H. leucopus*," (first column) should have been *Hesperomys leucopus*.

WITH next month we will be just one year old. At present our health is fair and improving so rapidly that we deem it advisable to have a reception, in honor of the occasion. We therefore extend a very cordial invitation to *you*, reader, and beg the privilege of recording *your* name in our subscription book at once. You will thus be present at the feast which we propose to make as palatable and entertaining as possible. With this end in view the JULY HOOSIER NATURALIST will have several good illustrations, will be enlarged four pages, which will be filled with the choicest of matter for all interested in nature. Let every one be present.

#### THE OSPREY EAGLE.

This month we send out many sample copies and should *you* read this, please consider it a personal request from us to subscribe. From the support we have already received we believe our efforts are meeting with a generous approval, as it has been our good fortune to open a "heap" of letters containing all the way from seven, to sixty, and seventy-five cents. If the senders could only occupy some unobserved position and watch the smiles of satisfaction steal gently o'er our editorial countenance, and could realize the immense amount of benefit the seven, or sixty, or seventy-five cents did us, they would immediately "girdle up their loins" and go forth collecting, not specimens, (reserve that for some more appropriate time) but subscriptions. Subscriptions are what we need, what we want and what we must have. (Present subscribers are allowed 40 per cent commission on all 60 cent subscriptions.) Imagine, if you can, an osprey's nest, containing, if you please, four awkward, ugly, noisy, and nearly famished young ones. The efforts of the parents to keep their "dear ones" from the poor house, are, at times, as frantic as are their appeals for food.

Notwithstanding the bold robberies of our well chosen (?) and emblematic bald eagle, the young are generally supplied with all they want, and quite often they become gormonds, yet with no more unfavorable results than to increase the bulk of fat.

We are in a measure like these young ospreys, we are *always* hungry for subscriptions. Like them, the more we get the more we want.

An overdose never does us any harm.

NUF SED.

N. B.—We will supply parties *desiring* to solicit subscriptions with sample copies *free*.

OUR illustrations for this month met with an accident and desiring to appear on time we go to press without them.

## MINERALOGY.

Conducted by THOMAS S. ASH, 126 Chestnut Place, West Philadelphia, Pa., to whom all articles pertaining to the subject should be addressed.

We offer a prize for the June issue a fine specimen of Iodyrite, from Lake Valley, New Mexico.

The crystals of iodyrite are imperfect in their formation, nevertheless they allow one to determine their form as a combination of the hexagonal prism and basal plane. Vom. Rath. Color, straw yellow to sulphur yellow. The spec. grav. was found to be 5.609, but the analysis was unfortunately lost; it was found qualitatively, however, that it was pure iodide of silver. Genth.

Occurs, frequently associated with the vanadates of the *Sierre Grande Mines*.

Questions for June are:

No. 1. Name a mineral whose cleavage is nearly perfect macrodiagonal; also one with a brachydiagonal cleavage.

No. 2. Name a crystal whose interior is a penetration twin of three orthombic individuals, closely resembling those often found by aragonite, while this pseudohexagonal core is surrounded by an external layer of the really hexagonal modifications.

No. 3. Name a locality which has furnished double terminated crystal of native gold, whose planes are brilliant and the crystals show no signs of twinning.

No. 4. Name a mineral which occurs in slender needle-like crystals of a white color and silky lustre, having a composition analogous to that of the phosphate tagilite.

Meteorites are divided into five classes by Professor Tschermak. First, those consisting essentially of iron; second, those having an iron ground mass with inclosed silicates; third, those consisting chiefly of olivine and bronzite, with iron as a subordinate constituent; fourth, those consisting essentially of olivine, bronzite or pyroxene, and, fifth, those consisting essentially of augite, bronzite, lime, feldspar, with a shining crust.



WATERLOO, IND., May 17, '86.

EDITOR HOOSIER NATURALIST: I see by "Maine Notes" that the nest of the black-capped chickadee is generally composed of "willow and bark down." I have one composed of hairs, thistle-down and moss; about an equal amount of each. Last summer I saw a robin's nest placed directly under the rail road iron on a bridge where a train passed at least every hour. Does the mourning dove often lay in other bird's nests? I found a set in a deserted catbird's nest.

Yours, respectfully,

J. O. SNYDER.

ELIZABETH, N. J., May 5, '86.

EDITOR HOOSIER NATURALIST: Not long since I visited a lady who told me a curious story about her cat. She said that one morning she gave the cat a piece of raw fish, and when it was eaten, immediately the cat fell over, as if in a dead faint. The lady then procured some cold water, and poured on the cat, which soon came to, and is alive and well now.

Thinking the fish might have become somehow slightly poisoned, she gave a piece of it to another cat, but no evil results followed. Have you ever heard before of a real cat faint?

Yours, truly,

J. H. FLOY.

BRAZIL, IND., June 10, '86.

EDITOR HOOSIER NATURALIST: I write to inform you that an Agassiz association has been formed at this place. Prof. J. C. Gregg, president. We hope in a short time to be able to take the HOOSIER NATURALIST. I think it is one of the best papers of its kind that is published. Our Chapter has eleven members to start on. That is pretty good, isn't it?

Respectfully,

GEO. B. BENNETT.

# THE HOOSIER NATURALIST.

VOL. I. No. 12. VALPARAISO, IND., JULY, 1886.

{ PUBLISHED MONTHLY.  
60c. PER YEAR.

## Mistaken Identity.

Many people have an alias. It is used, however, for a far different purpose than is the Latin alias, given to every member of the animal kingdom. This Latin alias designates many times, some peculiarity of the animal, and, when understood, generally gives us a better idea of its habits or characteristics.

You are all acquainted, no doubt with that nocturnal, gray-coated, cunning visaged dweller of the woods,—that notable cornthief and expert robber of hen roosts, with its Latin alias of *Procyon lotor*; or, to call it by its common name “coon” or raccoon.

*Procyon*, the generic part of the alias, is the name of a constellation and means “Forward Dog,” because it is ahead, and the Great Dog, *Sirius*, follows or chases; from which we can infer that this is an animal followed or chased by the dog.

Now, *lotor*, the specific part, being the name of the species, means one who washes, a washer. Naturalists tell us that this animal washes its food before eating. Raccoons live *principally* on small animals and reptiles, frogs, toads, lizzards, etc. It has never been our good fortune to observe this washing process, and we doubt very much if Mr. Coon takes the trouble when feasting in some cornfield, to carefully rinse each ear of corn, although he may wash a muddy lizzard or frog if a brook happens to be handy.

Raccoons are easily tamed, and make, if properly treated, pleasant, frolicsome

pets. Too frequently, when in captivity, their treatment is not the most gentle and they become snarling, snapping, cross coons.

We have heard that when kept as pets they soon go blind, not totally, perhaps, but nearly so. The most plausible explanation of this fact is that the raccoon is nocturnal in its habits, a night walker among our common animals. His eyes are intended to be used only by night, and be shut by day. But when boys have a pet of this sort, they don't usually let him shut his eyes much by daylight, and it is this bright and unnatural glare that spoils his eyes.

There is one characteristic peculiar to the coons, which the following anecdote will illustrate: We—Tom and myself—had been camping on the muddy Kankakee for several days.

The early mornings were devoted to fishing. The remainder of the day usually found us hunting and preparing the specimens we had obtained. This morning we had strolled off through the woods, intending to visit a large pond in the immediate neighborhood and expecting to find several white heron fishing for their usual breakfast of frogs. We were disappointed, however, and were about to return, when an exclamation of surprise from Tom made me look in his direction. He was intently examining the ground.

“What is it?” I exclaimed.

“Well, if this don't beat the Dutch! Baby tracks for all the world. Come here quick!” and he pointed to the edge

of the water.

"Nonsense," said I, but on looking at the tiny and evidently fresh tracks I uttered an involuntary "Well of all things."—"You bet your neck they are," said Tom, who was both excited and amused, and who never missed an opportunity to employ his favorite slang phrase. "The thing must belong to some camp, for there ain't a house nearer than five miles; and how a baby should happen to be down in this swampy place beats all the bandit stories I ever read. Do look at those little toes; barefoot, too!" and Tom's face broadened into a delightful grin, it seemed so odd, so very absurd. "But, Dan," he said, getting serious, "we'd better be hunting it up. It can't stay in this swamp: it'll be dead before night. It can't be far off—come on." Common humanity demanded that we should find the child, and securing our guns we followed hastily along the shore, guided by the little footprints.

"Here's where he stopped to play. See where his little fingers clawed up the mud, and here's where he clambered over the trunk of a fallen tree, and here is another track. He's left the lake and gone off into the woods," said Tom, growing more and more excited.

The ground was black and soft, sparsely covered with weeds and grass and here and there were the little footprints, so we hurried on.

"Poor little thing! It must be hungry. I should think it would cry!"

It seemed to walk a good distance for a baby, and several times we found the "brakes" had been broken off and then carried a little way and dropped, and once we came upon a puddle of water which looked as if the baby had been trying the sanitary effect of a mud-bath.

"He walks well for a little one," said Tom. "Why we've come as much as half a mile. I wonder where his mother is? I've heard of children being carried off by wild beasts, and so growing up wild men. Perhaps this is the case."

A few moments after the track disap-

peared at the base of a large, hollow stub of an oak. It was all decayed and evidently hollow within, having a great open hole at the base. The little footprints came directly here and disappeared.

"Do you think he's crawled into that hole?" asked Tom aghast. We both looked in, there were the tracks on the punk inside.

"Fell in there I'm afraid," said Tom. "Baby, don't be afraid. Come out, your ma wants you. Come out, little fellow, we won't hurt you."

It was so dark that we decided that some light on this puzzling subject was a necessity, so I procured a crispy roll of bark, and on Tom's lighting it, thrust it into the hole.

Neither of us thought of looking up the cavity. We did not expect the baby to climb the tree, but on the contrary feared had met its death by falling to the bottom. But as soon as the light was put in there was a great scrambling and tearing overhead and a shower of dust and bark came rattling down.

Gracious!" exclaimed Tom, "the little scamp is up instead of down. Whoever heard of a baby climbing a tree! I don't believe it is a baby," and he went to examine the foot marks. "Bet your neck it is a baby," said Tom. "How he can climb! I've heard that babies swim, too. I shouldn't wonder if they did make 'wild men' in just this way," and then in a coaxing tone, "Come baby, come down, we won't hurt you. We'll take you to your mother. I can see something up there," he added after a minute's silence, "but it don't look much like a baby." Highly excited, I threw in some more bark and we both craned our necks and strained our eyes into the darkness above. By degrees we saw more and presently made out the outlines of—a raccoon with its face an interrogation point askew as if he thought the whole thing an immense joke.

Disgusted, we withdrew our heads. "Sold!" ejaculated Tom. "Why, I was



sure it was a baby's tracks. I never knew that coons made human tracks. Don't let's tell a soul of this baby hunt; if you do every one will make fun of us," he added as the memory of our long tramp recurred to him, "the old rascal. Let's give it to him."

It was hard to see wherein the coon was to blame and harder still to get at him.

"Let's cut down the tree," said Tom. But there was no axe within seven miles, so we abandoned that idea. We might have smoked him out, but didn't think of that, so we went quietly back to camp.

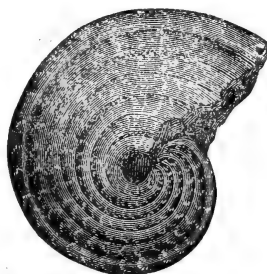
I need hardly state that this is the first time anyone has heard the secret. What Tom will do of say to us when he reads this issue of H. N. we can only surmise upon. We conclude he will think it the best plan to laugh over the whole affair.

### Mauvaises Terres.

BY L. W. STILWELL, DEADWOOD, D. T.

The "Bad Lands" (*Mauvaises terres*), of Dakota, are the wonder of the explorer. These "Lands" bordering on the White and Cheyenne rivers, are an unpeopled region, barren and unfruitful. Chimneys, pyramids and spires, isolated earthworks, formed by the erosion of water stand as silent sentinels over the sterile waste unnumbered. Years have gradually wrought changes unseen by the eye of man, and standing amid the strange cemetery of extinct and fossilized remains of past ages, a man feels a solemn loneliness creeping over him, and the funeral aspect presented to his view is anything but cheering. A few days of camp life in such a region will give one fresh relish for home and an appreciation of the green sward and growing fields. The water is unfit for man or beast to drink. In fact, very little water is to be found in the heart of the "Bad Lands". Uninviting as this area may appear to the general observer, it has a keen inter-

est to the student of Paleontology seeking knowledge, and he willingly undergoes the deprivations of such a camp, absorbed in the wonderful forms that speak to him out of the Cretaceous and Tertiary Ages. I think there are no richer fields or more interesting specimens on the continent than are offered by these same fossil beds.



We obtain *Ammonites placenta* from 30zs. to 50lbs, showing the lepta and sutures well defined and beautiful. Some have a brilliant iridescent surface without sutures in view.



Baculites are found from the size of a man's little finger to the size of the arm, and 10 to 15 inches in length. Occasionally one has been metamorphosed into pure calcite.



Scaphitids are mostly from one to 2½

inches in diameter. A bright, perfect 4 inch one demands a good price. Sometimes one is found with the chambers of the shell preserved and lined with calcite crystals.

The *Nautilus dekayii* is secured in good condition with difficulty. They are found in the same concretionary boulders of bluish lime-stone, together with the other specimens mentioned, and owing to the delicacy of this chambered shell it is easily destroyed in hammering and chiseling the rock to free it from its prison. But when secured it is a desirable specimen, especially if any of the chambers are exposed enough to bring to view the connecting air tube.

We have many highly interesting chunks of boulders containing 2 to 4 of these species conglomerate. *Gasteropods* and small *Inoceramus* are frequently thickly set in the concrete and in a very perfect state of preservation. These all belong to the cretaceous portion of the "Bad Lands".

The mammals of the Tertiary are some of them huge, of elephantine dimensions, as those know who are conversant with Profs. Marsh and Hayden's explorations in this locality, and who are familiar with Dana and other authors.

The Brontotherium and Titanotherium are especially of this order. The upper jaws and skull of the former animal are secured by collectors here, and two jaws have been found clashed together, and yet the conclusion cannot be formed that the upper jaw of the Brontotherium and the lower jaw of the Titanotherium belong both to one animal, because the teeth are so dissimilar. The



back molar of the Brontotherium is near-

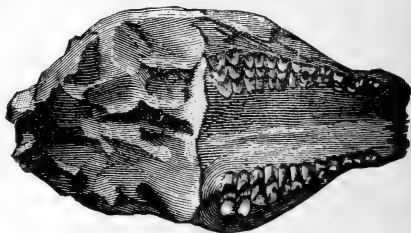
ly square, being  $3\frac{1}{2}$  to 4 inches each way, while the back molar of the Titanothe-



rium is about 4 inches long and  $1\frac{1}{2}$  to 2 inches broad. The skull of a Brontotherium here contains eight teeth to each side of the upper jaw which taper in size from the back to the front of the mouth. The animal has been estimated to be 28 feet in length and 8 or nine feet in height.

The Anchilherium or three-toed horse, the size of a fawn and resembling a pony, has teeth with uneven edges and concavities.

The Hyracodon was a form similar to the rhinoceros.



The *Oreodon gracilis* was a small animal with teeth of many sharp cutting edges.

The Saurian remains of teeth we very seldom see.

Another rare species called *Phenacodus* has been discovered and I have had a very few pieces of the jaw with teeth. These teeth are very peculiar. The enamel of all teeth mentioned is as hard and bright as in life. They are found in a deposit of compacted sand and clay. Belammites are found in a good state of preservation in a thin strata of Jurassic sandstone near the foothills some distance from the "Bad Lands".

Truly here are wonders of creation, and footprints of past ages, and voices from the foundation of the earth, speaking of God who made us and all things that move on the land or in the sea.

## MINERALOGY.

Conducted by THOMAS S. ASH, 126 Chestnut Place, West Philadelphia, Pa., to whom all articles pertaining to the subject should be addressed.

Michael Levy has recently examined a rock from the left bank of Jamma, a tributary of the Blue Nile. The rock consisted of the remains of orthoclase, of the first generation, in a ground mass of secondary quartz, with little crystals of nepheline orthoclase and amphibole. It is, according to Levy, a type of rock between the tephrites and phonolites.

Prof. Lacroix has examined the basaltic rocks of County Antrim, Ireland. These are labrador basalts with typical ophitic structures. They contain the following minerals in the order of their crystallization: apatite, magnetite olivine, labradorite, and pyroxene in lathe-shaped crystals, plagonite, hematite, chlorite and zeolites. The zeolites are in the cavities of the rock. A search for native lead mentioned by Andrews, as occurring in these rocks was made, but none was found. *Comptes rendus* CII, No. 8, p. 451.

Hæmostibite, is described by Igelstrom, as a new mineral from the iron mine of Sjögrufvan, Grythyttan parish, Sweden. It is blood red in color by transmitted light, and is found in a gangue of tephroite in fissures with calcite, in a bed of limestone in granulite. An optical examination by Bertrand proved the mineral to be orthorhombic. The acute bisectrix is negative and is perpendicular to the easy cleavage. The optical angle is small and the dichroism very pronounced. In hardness and general appearance it approaches haussmanite. An analysis yielded:—

Sb <sup>2</sup> O <sub>3</sub> ,	Mn O,	Fe O,	Mg (Ca) O.
37.2	51.7	9.5	1.6.

The composition is represented by the formulæ 8 Mn O, Sb<sup>2</sup> O<sub>3</sub>, or 9 Mn O, Sb<sup>2</sup> O<sub>3</sub>, which is very near another mineral already described under the name mangano-stibite, with which the hæmostibite

is identical.—*Bulletin de la Societe Mineralogique.*

Orthoclase has been found for the first time as a druse mineral in leucite-tephrite. In the cavities of this rock were found crystals of phillipsite, calcite, adularia, altered pyrite, and calcite again in a regular order of deposition. The adularia occurred in groups covering phillipsite and also in perimorphs of calcite. Crystals of the latter mineral were covered with a druse of adularia, and showed under the microscope a rim with aggregate polarization, as if the calcite substance were gradually being replaced by adularia.—*Zeitschrift für Krystallographie*, X, p. 601.

### Can Dogs Count?

E. P. Roe, in St. Nicholas, describes a shepherd dog that could count.

The dog was known as "Old Fetch," and it was his duty to bring up the cows at night.

There were nearly a dozen of them and they ranged at will among the "Highlands of the Hudson." On this particular evening, "Old Fetch" had gathered all the cattle and was driving them along the "mountain road leading to the distant barn-yard." A portion of the road passed by a low place bordered by a thicket of alders in which one of the cows concealed herself. As the cows passed through the gate Fetch became uneasy. His whining and growling soon attracted the attention of his master. Fetch went to the fence surrounding the yard and standing on his hind feet peered through the rails and watched the cattle for several minutes. Then he started off down the road at a rapid run. After a while a furious tinkling of a bell was heard and directly Fetch appeared with the missing cow, compelling her to move at a rapid gait by frequently leaping up and seizing her by the ear.

"The gate was again thrown open and the cow shaking her head from the pain of the dog's rough reminder, was led through it in a way that she did not soon forget. Fetch then lay down quietly to cool off in time for supper."

Dogs are unmistakably very intelligent, however we prefer to think that the absence of the cow was noticed from a personal acquaintance rather than by counting.

### Botanical Oddities.

While the subject of the fertilization of clover is under discussion, the following circumstance may not be without interest.

Some days since I was told that the first crop of our red field-clover in each year does not bear seed—that the seed is saved only from the last crop—and I was asked to account for it, but gave it up as a bad job, being rather inclined to the opinion that the narrator was playing upon my credulity, but a few days subsequently I came across the following passage in perusing Darwin's "Origin of Species":

"The tables of the corolla of the common red and incarnate clovers (*Trifolium pratense* and *incarnatum*) do not at a hasty glance appear to differ in length, yet the hive bee can easily suck the nectar of the incarnate clover, but not out of the red clover, which is visited by the bumble bee alone, so that whole fields of the red clover in vain offer an abundant supply of the precious nectar to the hive bee.

"That this nectar is much liked by hive bees is certain, for I have repeatedly seen, but only in the autumn, many hive bees sucking the flower through holes bitten in the base of the tube by the bumble bee.

"The difference in the length of the corolla must be very trifling in the two kinds of clover, for I have been assured that when red clover has been mown the flowers of the second are somewhat smaller and these are visited by many hive bees."

Thus is the peculiar occurrence I mentioned accounted for when we know that in this region the bumble bee is almost an "unknown quantity", and hence the flowers of the first crop are not fertilized.

\* \* \* \* \*

How many of my readers have ever seen the Walking-Fern (*Camptosaurus rhizophyllus*)? This is one of the rarest of

American species of ferns, being of only extremely local occurrence, and growing in secluded spots in very deep woods. Two years ago a party of friends and I were on an exploring expedition in the heavy oak timber on the Des Moines river, some five miles below Ottumwa, Iowa, and at the foot of a high rocky bluff we found a patch of moss of about one yard square, thickly studded with magnificent specimens of this beautiful fern.

We secured some of the finest obtainable and left, expecting to return soon after and collect those that remained, but were prevented from so doing by some harsh fate, and they probably still remain and will one day furnish an agreeable surprise for some other botanical enthusiast.

This fern does not possess the usual form of leaf of the fern family, the leaf being shaped very like that of the "Leopard's tongue"; and at maturity each puts forth from the tip a thread-like tendril of about the length of the leaf itself, which tendril strikes root at the end, another fern grows up and goes through the same proceedings, and so forth, forming a long series of loops.

In my next paper I shall give you some peculiar features of the technical nomenclature of plants.

W. R. LIGHTON,

Creston, Iowa.

### New Mexican Humming Birds.

Near my house at Lore Mountain was a piece of wet meadow land, or *cicexa*, the tall grass thickly dotted with red flowers, which were very attractive to the hummingbirds, and through September they were very abundant, lingering until the first touch of frost in the latter part of the month.

Here I obtained a few specimens of the tiny calliope hummingbird, measuring but  $2\frac{3}{4}$  inches; the tail 2; wings  $1\frac{2}{3}$ ; bill  $\frac{1}{2}$ . Though so small, the male is

particularly handsome, being of a golden-green white below, with green and rufus on the sides; the gorget, which is prolonged into a ruff, is violet or lilac, with the base of the scales and sides of the neck pure white; the tail feathers, including the central pair, are brown, with pale tips and slight rufus edging; the under mandible is light. The throat feathers of the female are not ruffled and have dusky spots in place of the gorget; there is no green on the sides and the tail feathers are variegated with green, rufus, black and white.

I have only found three in this one locality and they are very scarce there, as I found not more than ten out of the humming birds that I observed in that place during two seasons.

CHARLES H. MARSH,  
San Diego, Cal.

### Maine Notes.

GEORGE H. BERRY.

No. 558. White-throated Sparrow [*Z. albicollis*]. This bird is about the size of the song sparrow, brownish in color, white throat, white breast and yellowish stripe on head and over each eye. In the female these stripes are dirty white. They nest in low bushes and on the ground in low land, and usually lay five eggs, size .86x.66e, color pale bluish green, blotched with large blotches of amber and reddish-brown in some becoming confluent. Nest in June. Common, and their song is one of the characteristics of the Maine woods.

No. 560. Chipping Sparrow [*Spizella socialis*]. This bird is probably more noticed by the majority of people than any other sparrow. Brownish in color, with a reddish-brown head. This bird is called by many bush sparrow and hair bird. It builds its nest near houses, of sticks, straws, etc., lining it invariably with hair, and laying five eggs, of a bluish green color with a wreath of purple and lavender spots and scrawls around

larger end. A very few eggs are spotted on other portions. F. A. Pitts found a nest of this sparrow in a bunch of clover on the ground containing four eggs. Nest in June. Eggs measure .70x.52e. When the bird builds away from dwellings they almost invariably select an evergreen.

No. 563. Field Sparrow [*S. pusilla*].

Rare here, but thirty miles south-west they are reported as plenty. They build a nest of grass, etc., lined with grass, hair and the seed stems of mosses. Eggs five, measure .70x.50, and in color are clayey-white, dotted and spotted with brown. Nest by side of road, in pastures, etc., usually in low bushes, but sometimes on the ground. Nest in June.

No. 567. Slate-colored Junco [*Junco hyemalis*]. This is the first bird we have, coming before the snow hardly begins to go off in the spring. The bird is very tame and associates, spring and fall with the song sparrow. The bird is not black but a dark slate; the breast the same, belly dirty white, the two colors meeting on the breast as distinctly as if cut with a knife. Nest on the ground much like that of the song sparrow and usually placed in the side of a hillock, composed of grass, etc. The eggs are five in number, .77x.61, and creamy white in color. A few spots of brown and lilac being scattered over the surface of the egg. Around the larger end is a confluent wreath of amber, red, brown, and slate. I have several times found cowbird eggs in nests of this bird. A nest was found last year under a sod in a hill of corn. Nests latter part of May and June.

No. 581. Song Sparrow [*Melospiza fasciata*]. Common. Called here, ground sparrow. Mixed brown in color, breast greyish, with three dark blotches arranged in a triangle. Nest in banks of streams, sides of hillocks, low bushes and in clumps of thick weeds. Eggs five, size .82x.61e. Color ranging from greenish to clay, spotted and blotched with umber and rusty brown. Nest

in June.

584. Swamp Sparrow [*M. georgiana*]. Quite abundant. A smaller bird than the song sparrow, with light bars on wings and brown head. Nests on hillock, tuft of grass or low bushes in swamps and edges of lakes. Eggs light green, blotched with umber and reddish brown. spots sometimes confluent and sometimes bold and distinct. Size .76x.60v. Nest in June.

No. 585. Fox Sparrow (*Passerella iliaca*.) Extremely rare, associating with the song sparrow. A slightly larger bird of a rusty red-brown. Nests in low bushes and on the ground. A set of eggs taken in Buckfield by F. A. Pitts, measuring .91x.71, in color greenish-white, so thickly spotted with rusty red as to appear of a russett, almost concealing the ground. Number of eggs five. Nests in May and June.

No. 595. Rose-breasted Grosbeak (*Ha-bia ludoviciana*.) Quite common, nesting in shrubs and trees. The bird is nearly the size of the robin, black and cream, marked on back similar to the bobolink, dirty white belly and rose red throat and breast. Female brown, with light stripes on head, nest composed of sticks, resembling that of cuckoo and jay. Eggs: 5, size .95x.70v. Color bluish green, uniformly spotted with light brown. A set taken from a hazel bush in '85, was of a bright sea green, marked and spotted chiefly at the larger end with umber, black and dark purple. Size 1x.78. One peculiarity of the bird is it always builds in the same vicinity. If in the early spring you see an old nest you will always find the birds to nest within a few rods from it the next summer. Nest in June.

No. 598. Indigo Bunting (*Passerina cyanea*.) Common. Called by many "Woods blue bird". Dark indigo blue. Female brownish, unspotted. Nest in bushes and composed of grass, etc. Eggs four or five, bluish white,

quite bright when fresh but dulling and fading by exposure to light and air. Unspotted or rarely spotted with faint specks of brown eggs. Eggs measure .76x.57. Nest in June. Locality sides of road, pastures, etc.

No. 494. Bobolink (*Dolichonyx oryzivorus*.) The bobolink or skunk blackbird is black in color, with head of yellowish-white and creamy back and shoulders. Female a peculiar yellow-brown. Nest in June, in fields and meadows. The nest is composed of grass, etc., placed on the ground, usually in a rank growth and almost impossible to find. The male being constantly on the watch gives the alarm and the female flies while you are rods away from the nest. The best way is to determine as closely as possible and then on a moonlight night or with a lantern, search for it. In most cases the bird will stay on the nest till you are within a foot or two of her. The eggs are five in number and measure .90x.75. Color of those in my collection are pale blue, thickly blotched and spotted with drab and lavender, with a few blotches and scrawls of umber and purple. These latter appear to be merely surface markings. Nests in June.

No. 495. Cowbird (*Molothrus ater*.) I do not know as I ever saw one of these that I was positive of, but have many times seen a bird around the nests of other birds that resembled the female red-wing blackbird. I have found their eggs in nests of bluebirds, warblers, vireos, sparrows, buntings, once in a nest of a robin and once in cedar wax-wing's nest. Size .85x.65v. The number of eggs in a set and time of laying not known.

An exchange says the school-children of New Orleans are contributing 5 cents per month to purchase a monument to the memory of JOHN J. AUDUBON, the ornithologist, who was native of that city.

## Scaled Partridge.

(Callipepla squamata.)

This Quail is almost as abundant on the dry mesas of the San Pedro slope of the Santa Catalina Mountains, up to an altitude of 3500 feet, as its congener *C. gambeli*. It affects a more open country, however, though I have often seen flocks of Quails where the two species were represented in about equal proportions.

\* \* \* \* \*

The birds remain in flocks in the region of the Catalina Mountains, where I live, till as late as the middle of April, when they gradually break up into pairs to assume their family duties.

The only nest I have found was at an altitude of about 3500 feet. This was on the 20th of May, 1885. There was little attempt at a nest, but simply a slight depression in the sand, lined with a few grasses under a small cat-claw bush. There were eleven nearly fresh eggs that so closely resemble those described by Dr. Coues (see *Birds of the Northwest*, p. 443) that further description is unnecessary. It may be well in this connection to call attention to the extreme thickness of the shells of the eggs.

I have taken birds of the year in the same locality that had not yet completed the moult from the nest plumage as late as the middle of October, so that probably several broods are raised.

The birds, whether in flocks or singly, are shy and difficult to approach, and it is no easy matter to overtake a flock when they are alarmed and begin to run as a method of escape instead of flying. The call-note of the birds after being scattered reminds one in a way of the note of the Guinea Fowl, only that it is not so loud nor continuous.

\* \* \* \* \*

—"Scott on the Birds of Arizona," from *The Auk*, for July.

## The Eagle and its Prey.

In hunting for their prey, the eagle and his mate mutually assist each other. It may here be mentioned that the eagles are all monogamous, keeping themselves to a single mate and living together in the most perfect harmony through their lives. Should, however, one of them die or be killed, the survivor is not long left in a state of widowhood, but vanishes from the spot for a few days and then returns with a new mate. It is a rather remarkable fact that, whereas the vultures feed their young by disgorging the food which they have taken into their crops, the eagles carry their prey to their nests and there tear it to pieces, and feed the eaglets with the morsels. When in pursuit of its prey it is a most audacious bird, having been seen to carry off a hare from before the noses of the hounds. It is a keen fisherman, catching and securing salmon and various sea fish with singular skill. Sometimes it has met with more than its match, and has seized upon a fish that was too heavy for its powers, thus falling a victim to its sporting propensities. Mr. Lloyd mentions several instances where eagles have been drowned by pouncing upon large pike, which carried their assailants under water and fairly drowned them. In more than one instance the feet of an eagle have been seen firmly clinched in the pike's back, the body of the bird having decayed and fallen away.—*Exchange*.

## Los Angeles Items.

In Los Angeles, Cal., ostrich eggs as window ornaments seem extremely popular. Fifteen or twenty stores now exhibit them.

John P. White, a well-borer of East Los Angeles, Cal., found the tusk of a mastodon or elephant at the depth of 46 feet one day last week.—*Exchange*.

**Fossil Birds.***(Ornitholites)*

BY DR. BENJ. F. MASON.

In the British Museum is an oblong slab of lithographic slate, from the celebrated quarry of Solenhopen, in Germany. In this slab, discovered in 1861, are the remains of the *Archæopteryx*, the oldest bird known, the connecting link between birds and reptiles. The outlines of the bird lie thereon in some confusion, yet give a pretty well defined figure of its form. Some of the bones of the head and sternum are missing, but the fragmentary wings lie in place, and one leg with the foot is pressed back beside the long tail, with its twenty joints. The feathers are unequivocally those of an aerial bird and the feet are formed for perching on trees. What color its plumage was, and what cry it emitted, or whether it sang, or not, we can only leave to the imagination.

This bird must have presented a most wonderful spectacle, indeed, as it flew through the air with its long caudal appendage streaming out behind and claw-tipped wings, floating on each side of its reptile-like body.

When we consider that the last *Archæopteryx* was imprisoned in the Mesozoic formations, millions of years ago, and there left to mould a cast for the delectation of present scientists, is it not wonderful that after all those, almost innumerable ages, that any traces of it are left to us at all? Can we even conceive that a sparrow, or hawk, of our age, could be buried in the earth, so as to be quarried out of the solid rock in a million years to come?

After the cast of the last *Archæopteryx*—the middle of the Mesozoic Age—no more birds with vertebrate tails, appear in the earth's formation. When next we find the fossil bird, the long caudal appendage has disappeared and it has gathered closer together the centres of its structure. But between this

long relic, and the next traces of the birds in the rocks, we find a great gulf of time. And in this vast period great changes went hand in hand, in the general remodeling of the whole sphere of the earth's life. For a long period birds flourished with a monstrous development of powerful beaks and teeth.

In the Eocene rocks we find numerous fossil fragments, showing a great variety of bird forms; mostly of great size and many of them possessing powerful teeth. In the Eocene of England are suggestive types of the kingfisher and heron family. In France, in the Paris basin, and also in the marl deposits, near Aix, in Provence, numerous fragmentary skeletons, fossil feathers, and even eggs, have been found.

In America, in the Jurassic formation of Wyoming, has been found a toothed bird about the size of the great blue heron (*Ardea herodias*), but in appearance, resembling the Ratitæ. In Kansas the remains of a large number of fossil birds have been discovered. One of them, six feet in length, an aquatic bird taken from the yellow line of the Smoky Hill river region, and from the calcareous shale near Fort Wallace—it is named *Hesperornis regalis*.

In the middle Cretaceous of Northwestern Kansas, has been discovered a most remarkable genus of toothed birds with fishy vertebrae, named the *Ichthyornis*. It was a small bird, a little larger than a pigeon, and with the exception of its bi-concave vertebrae and teeth, resembled the highest ornithological types.

We will now turn to what geologists denominate the Tertiary rocks, where we find the true ancestry of our present birds—and where for the first time we find the type of the songster. Birds that had a peculiar structure of the lower larynx, necessary for singing.

In Colorado, shale bearing insects, have been discovered the remains of many birds, and one, in particular,—now preserved in the Boston Museum,—the almost



complete skeleton of a bird belonging to oscine division of Passeres, a division which included all the singing birds of our age. Thus we see that before age of man, the ancient forest rang with song. How do geologists know this? Because this fossil bird had a lower larynx, or syrinx, necessary to the songster.

Another strange bird, of the Eocene period, is the *Odontopteryx*, an aquatic bird—perhaps much resembling in its habits the cormorant—with a powerful jaw filled with teeth.

And now we come to what may be termed sub-fossil remains, giant birds, some of which have passed away since the memory of man, such as those found in the sands of Madagascar and in New Zealand. Among these is the Dodo, or *Dronte*, a large, clumsy bird of over fifty pounds in weight, with a loose, downy plumage, and with imperfect wings. It was found in great numbers by the Dutch navigator of the seventeenth century. But after the island came into the possession of the French, in 1712, the Dodo seems to have become extinct, and with the exception of a cranium, two feet, and drawings of the bird, nothing relating to it remains. The Moa (*Dinornis giganteus*) of New Zealand, was a bird about twelve feet in height, and its bones have been found among charred wood, showing that it had been killed and eaten by the natives. Also in the same regions, many other extinct species of gigantic birds have been discovered.

Could we turn the rock inscribed leaves of this world of ours, stratum by stratum, and read them page by page, we would find many strange forms of birds, till at last we traced them back to the reptiles and fishes, their ancient ancestors, from which by some grand process of evolution, they reached their beautiful form and plumage. Thus it was with the other life of the globe, ever progressive, though at times, Nature seems to have turned from a partly fulfilled purpose, as if, to find a better and shorter way to reach perfection.

### Scissor-Tailed Flycatcher's Eggs.

(*Milvulus forficatus*.)

White, marked with a few dark red spots and occasionally of an obscure purple, chiefly at the larger end; the eggs vary in color from pure white, unmarked specimens, which are very rare, to finely speckled with reddish-brown, and often covered with large spots and blotches of brown and lilac, and look as if white-wash had been brushed over the colors. This description of the eggs is given me by Mr. J. A. Singley, of Giddings, Lee County, Texas, who has collected thousands of specimens. He says: "What I call a typical nest is built of weeds, small stems and thistle-down, and lined with down and sometimes with a few fibrous roots. Since the introduction of cotton gins and sheep ranches most of the nests are built of weeds and cotton or wool or both felted, and lined with the same, but oftener with no lining at all." The nest is built in trees varying from six to twenty feet. Mr. Singley says the usual number of eggs in a set is five, fully eighty per cent. being of that number; the other twenty per cent. is about equally distributed between sets of four and six. He has sent me several nests with eggs of both extremes; the eggs measure about .87 by .67, with variations. The nests in size average a little smaller than those of the Kingbird. The Fork-tailed Flycatcher is an abundant bird in Texas and is found as far North as Indian Territory and Southwestern Missouri. It is a common species throughout Mexico and Central America.

[Selected from "Nests and Eggs of North American Birds," by Oliver Davies, and printed by permission of the author. This valuable little work is now in its second edition, being entirely revised and enlarged to nearly 200 pages. The seven full-page engravings add materially to the beauty of the book. As a companion for field work it is unsurpassed. For further particulars see advertisement elsewhere.]

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R. B. TROUSLOT,  
EDITOR AND PUBLISHER.

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A YEAR ago we placed THE HOOSIER NATURALIST before the public. To make it a success we have worked day and night and now as we close with twelve months of toil, the NATURALIST stands before all hale, hearty, and happy. It has made many friends and we hope that those who formed our acquaintance a year ago have not regretted it and will now risk another year's journey with us. We extend our hearty thanks to those who have so kindly assisted in both words and deeds and we trust that you will not think unkindly of us when we extend a hearty invitation to all to continue your friendly efforts in our behalf. We believe that with the year's experience just gained we will be able to extend our usefulness and that we will have the satisfaction of doubling, trebling, yea, quadrupling our circle of friends and acquaintances.

WE thank those friends who responded to our call in reprinting Nos. I and II, but as scarcely even \$20.00 could be realized we are compelled to abandon the idea.

SPECIAL advertising rates for the next three months.

THE advertising matter will be found quite interesting this month. It will pay you to look it over carefully.

SEVERAL of our contemporaries are taking a vacation. We wish them an enjoyable time. Ours will come later.

THE hot weather has put a quietus on collecting "trumps," and parties. In our immediate neighborhood everybody is waiting for rain and winter.

WE devote over a page this month to our exchanges. Several valuable ones are omitted through want of space. We will, however, speak of them next time.

CHARLES H. MARSH is not at Los Angeles, has not been there and does not expect to go there. So please address him at San Diego, Cal., when you want bird skins.

ESPECIAL attention is called to L. W. Stilwell's page "ad" which appears in this issue. In all our dealings with him he has always been at his post, and we take pleasure in recommending him to our readers.

AN Index for Vol. I. of the H. N. is omitted from this issue. It will be sent with No. 1, Vol. II. Subscribers who do not care to renew will receive the index if they will notify us by postal card that they desire it.

For exchange: The following copies of "Tidings from Nature":

11 copies	Vol. II.	No. 7
16	"	" 6
6	"	" 4
1 copy	" 1	" 12
1	" 1	" 11
1	" 1	" 9-10
1	" 1	" 3

"TIDINGS FROM NATURE" ceased to exist with No. 7 of its second volume. We have these seven numbers neatly bound in cloth, which we will send prepaid to every one for only 75 cents. This makes a desirable volume indeed, and we can but suggest if you are interested in Natural History that you purchase one at once.

## TAXIDERM.Y.

It is our desire to make this department one of the leading features of our paper. Our Taxidermal friends are cordially requested to contribute.

Having recently received several mammals from the South in such a complete state of decomposition as to start everyone within ten rods, on a run for fresh air, we are led to print the following, which is taken from a pamphlet by Wm. T. Hornaday, chief taxidermist, at the National Museum, and which is published by the Smithsonian Institute. We trust that our friends will learn from this, many valuable hints on preserving the skins of mammals:

### SKINNING SMALL QUADRUPEDS (VARYING IN SIZE FROM A MOUSE TO A MASTIFF.)

Lay the animal flat upon its back, and, beginning at the throat, make a straight, clean cut in the skin along the middle of the neck, breast, and abdomen, quite to the base of the tail. Except in very small animals the tail also must be slit open along the under side from about one inch above the root quite to the tip.

The bottom of the foot must be slit open lengthwise, from the base of the middle toe to the heel. All the opening cuts in the skin are now made.

Begin at the middle of the abdomen, and cut the skin neatly from the body, leaving no flesh, or at least but very little, adhering to it. We come very soon to where the fore leg joins the body at the shoulder, and the hind leg at the hip. Cut through the muscles at those points, disjoint the legs, and detach them entirely from the body.

Skin each leg by turning the skin wrong side out over the foot, quite down to the toes. When this has been done, cut the flesh away from the bones of the leg and foot, but be careful to leave the bones attached to each other by their natural ligaments, and to the skin itself at the toes. *Never throw away*

*the bones of an animal if the skin is to be mounted, but leave them attached to the skin.*

Detach the skin from the back, shoulders, and neck, and when you come to the ears cut them off close to the head. Turn the skin wrong side out over the head and proceed until you come to the eyes. Now work slowly with the knife, keeping close to the edge of the bony orbit, until you can see, through a thin membrane under your knife edge, the dark portion of the eye. You may now cut fearlessly through this membrane and expose the eyeball. It is a good plan with large mammals to hold one finger of the left hand in the eye and cut against it to avoid cutting the lid.

Skin down to the end of the nose, cut through the cartilage close to the bone, and cut on down to where the upper lip joins the gum. Cut both lips away from the skull close to the bone all the way around the mouth, except directly in front of the incisors.

The lips are thick and fleshy, and must be split open from the inside and flattened out so that the flesh in them may be pared off. Do not cut off the roots of the whiskers or they will fall out. Pare away the membrane which adheres to the inside of the eyelids and turn the ear wrong side out at the base in order to cut away the flesh around it.

If the ears have hair upon them they must be skinned up from the inside and turned wrong side out quite to the tip, in order to separate the outside skin, which holds the hair, from the cartilage which supports the ear.

To clean the skull, cut the flesh all off the cranium, cut out the eyes and tongue, and with a bent wire, or a spoon-handle bent up at the end, draw out the brain through the occipital opening at the back of the skull.

By this time the skin will most surely have become bloody in several places, and before applying any preservative it must be washed *perfectly clean*. Blood

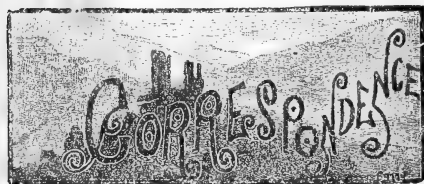
left upon the hair imparts to it a lasting stain, and usually causes the hair to come off in mounting.

#### TO MOUNT CRAW FISH.

Taking a specimen (just killed) by the back, between the thumb and finger, press or pull the tail downward with the other hand in such a manner as to separate the shell of the back from the tail and breast. Now with a small knife, scrape out all soft matter from the body and also the flesh from inside the tail. Replace the shell of the back and arrange the legs and claws in their natural shape. Drying it in a slow oven or under the stove will color it a bright red. Drying it in the sun will give it a purple and red color.

But to preserve its natural color it should be dried in a dark box.

JOHN O. SNYDER.



GUILFORD, VT., March 1, 1886.

EDITOR HOOSIER NATURALIST:

SIR.—I have just received the January number of your publication. I like it very well in most respects, but I could venture to criticise the article by M. W. Brubaker. He states that the cuckoo builds no nest of its own, but like the cowbird—cow-blackbird we call it—imposes upon some other bird the task of hatching and rearing its young. I think Mr. Brubaker is mistaken, as Bonaparte says of the yellow-billed cuckoo:

"The nest is placed upon the horizontal branch of a small tree, and is very slovenly put together. The eggs, from

two to four, are of a pale bluish green color."

And Nuttall gives a similar description of the black-billed cuckoo. I can support these theories through personal experience, as I have found the nests of the black-billed variety, and they agree perfectly with Nuttall's description. If you think these facts of sufficient importance, you may give them to your readers.

Respectfully yours,

JOHN E. GALE.

[Mr. Brubaker referred not to the American cuckoo but to the European member of the family.—ED.]

#### A YOUNG WHIP-POOR-WILL.

EDITOR HOOSIER NATURALIST:

The latter part of June, I was staying in the Northern part of Pulaski county, Ind., collecting eggs. One day, June 24, I learned the location of a whip-poor-will's nest, and concluded to visit it. I expected to obtain the eggs, but on reaching the spot, instead of the eggs, we found a young whip-poor-will. It was a very beautiful little bird covered with down. The color was a light brown with stripes of darker brown on its back. It was about two inches in length. It had no nest.

A few days afterward we again saw it. This time it ran around a little and tried to open its eyes, although as my friend said, "it had not grown a pound."

We went again to visit him but he was not to be found.

I found a nest of the Phebe bird on a shelf in a vacant house. The nest was composed of moss, grass and mud; as in all nests of this bird that I have ever seen.

A nest of the English sparrow was in the lantern box of a signal post by the railroad. A pane of glass had slipped out of place, permitting the birds to enter.

Every night there was a red light lantern in the box, but they did not seem to care for it. The man who turned switch

said that there was a blue bird's nest there last year.

THOS. H. CARVER.

EDITOR HOOSIER NATURALIST:

I am a believer in the protection of bird life as far as fashion is concerned; but I *do* believe that in the interests of scientific investigation and research that it is perfectly right to take eggs and kill birds. If the laws concerning bird protection, that were recently enacted in the State of Massachusetts, are adhered to rigidly, ornithology must eventually become obsolete here.

Hereafter no person can kill a bird or take an egg for scientific or other purposes unless he is over 21 years of age and *then*, not without a permit from the game committee or the president of the Boston Society of Natural History.

In my estimation a man who never took an egg or bird before he was 21, never will take one; for love of science is not generally acquired after that time and two or three generations will be sufficient to kill all interest in this one department of it. Massachusetts has always held a high place in ornithological matters, but unless these laws are repealed she will hold it no longer.

Perhaps the legislature and members of the "A. O. U." think that they "know it all" and that there is no room for improvements or acquisitions, but if they will recollect that one half this knowledge has come through amateurs, and that they were once amateurs themselves perhaps they will think differently.

F. H. METCALF.

WEST SPRINGFIELD, PA., July 20, 1886.

On the 5th of May last I found a nest of Kildeer containing 5 eggs. According to Davies' Egg Check List they deposit but four eggs and are very near the same size, but these vary quite a good deal in size.

All Kildeer nests that I know of being found around here have been found on

newly broken ground.

Perhaps the above may be of some interest to your readers.

Yours truly,

M. R. POTTER.

AMHERST, MASS., July 7, 1886.

EDITOR HOOSIER NATURALIST:

Please state that my method is bad and worse than useless, and oblige.

Sincerely yours,

HUBERT L. CLARK.

[Mr. Clark refers to his method for preserving birds which appeared in last issue.—ED.]

EDITOR HOOSIER NATURALIST:

DEAR SIR.—While out walking Sunday, May 9, I found a crow's nest, which I, for the following reasons consider to be an uncommon find. It was placed in a large hole in the end of a rotten limb and was composed of rags, dry maple leaves, grass, and the inner fibrous bark of trees.

This is the first nest I ever found in a maple tree, and also the first situated in a hole in a rotten limb and not containing any sticks. The nest contained 4 fresh eggs of the usual size and markings. If any of the readers of the H. N. have had similar finds I would like to hear from them.

W. H. F.

THE Sandwich *Free Press* speaks of driving the English sparrow away by feeding them cayenne pepper. Very good. This, however, does not rid us of the nuisance. A good scheme is to soak wheat, bird seed, or any other substance that they will eat, in a solution of arsenic, then place it in a dish or pan in a sufficiently elevated position to prevent domestic fowls from feeding on it. The sparrow would eat the grain and very probably die. A less cruel way, perhaps, would be to soak the intended food in whisky and when to drunk to fly, ring their necks. United work of this description, especially in the winter, when they are, apparently, more gregarious, would soon deplete their numbers.

## PUBLICATIONS RECEIVED.

Auk, The. A Quarterly Journal of Ornithology. Edited by J. A. Allen, assisted by Messrs. Coues, Ridgway Brewster, and Chamberlain. Vol. III., No. 3, pp. 127. \$3.00 per year.

Poultry World, The. For the Amateur Poultry Raiser. Heffelman & Snell. Publishers, New Cumberland, Pa. Vol. 1., No. 4, pp. 4 Sub. 20 cents.

Chemung Review, The. General Science. Elmira, N. Y. Vol. 1., No. 4, pp. 14. Sub. 50 cents.

Indiana Farmer, Indianapolis, Ind. Vol. XXI. No. 27, pp. 16. Sub. \$1.00

American Jeweler, The. Published by Geo. K. Hozlitt & Co., 172 & 174 Clark St., Chicago, Ill. Vol. V., No. 6, pp. 36. Sub. \$1.00.

Semi-Tropical, The. Geo. F. Miner, Editor and Publisher. Eustis, Florida. Vol. V., No. 52, pp. 8, weekly. Sub. \$1.50.

Scientific Californian. Science, Art, Hygiene and Humor. Wm. O. Thrailkell, Editor and Publisher., 1049 Market St., San Francisco, Cal. Vol. IV., No. 2, pp. 6. Sub. \$1.00.

Arkansaw Traveler. The. Little Rock, Ark. Vol. IX., No. 8, pp. 8, weekly. Sub. \$2.00.

Scientific American, The. By Munn & Co., 361 Broadway, N. Y. Vol. LV., Nos. 1, 2, 3, pp. 16, weekly. Sub. \$3.00.

Star Advocate, The. A Cycling Journal. Published by E. H. Corson, East Rochester, N. Y. Vol. II., No. 8, pp. 8. Sub. 50 cents.

Kennel Monthly, The. Chatham, Ontario. Vol. II., No. 4, pp. 16. Sub. \$1.50.

Western Penman, The. Muscular Movement Advocate, Cedar Rapids, Ia. Vol. III., No. 3, pp. 16. Sub. \$1.00.

Canadian Naturalist, The. A Bulletin of observation and discoveries of Canadian Natural History. Cap. Rouge,

Quebec, Canada. Vol. XV., No. 12. Sub. \$2.00. We are highly gratified to note the appearance of this interesting magazine among our exchanges.

Penman's Gazette, The. Published by the G. A. Gaskell Co., Chicago and New York. Vols. VII. and VIII. Dec. '85 to July '86, pp. 16. Subscription \$1.00. Please accept our thanks for copies received.

"The Story of the Rocks," by Prof. I. N. Vail, of Barnsville, Ohio, 12mo., cloth, 375 pages. The ideas advanced by Prof. Vail are not *entirely* new, though his work is a most consistently logical exposition of the theory which he advocates. It is not antagonistic to religion and the infidel and christian will both find in it a new arena for the contest between science and religion. No reader can fall short of an honest interest, although conviction may not result.

A list of the Birds Observed in Ventura Co., Cal., by Barton W. Everman, paper, pp. 16.

List of Fishes Collected in Harvey and Cowley Counties, Kansas, by Barton W. Everman and Morton W. Fordice.

Indiana Academy of Science, Constitution, By-Laws, Officers, and List of Members, paper, pp. 8. Published by Executive Committee.

The Periodical Acaida in Southeastern Indiana. By Amos W. Butler, Brookville, Ind., paper, pp. 2.

A Review of the N. A. Species of Petromegzontidæ, by David S. Jordan and Morton W. Fordice, with an additional note on the Lamprey of Coguga Lake. Paper, pp. 18.

A Review Catalogue of the Birds of Kansas, with descriptive notes of the nests and eggs of the birds known to breed in the State. By N. S. Goss. Cloth, pp. 76.

The gentlemen who have so kindly favored us with the above will please accept our thanks for the same. We shall refer to them later.









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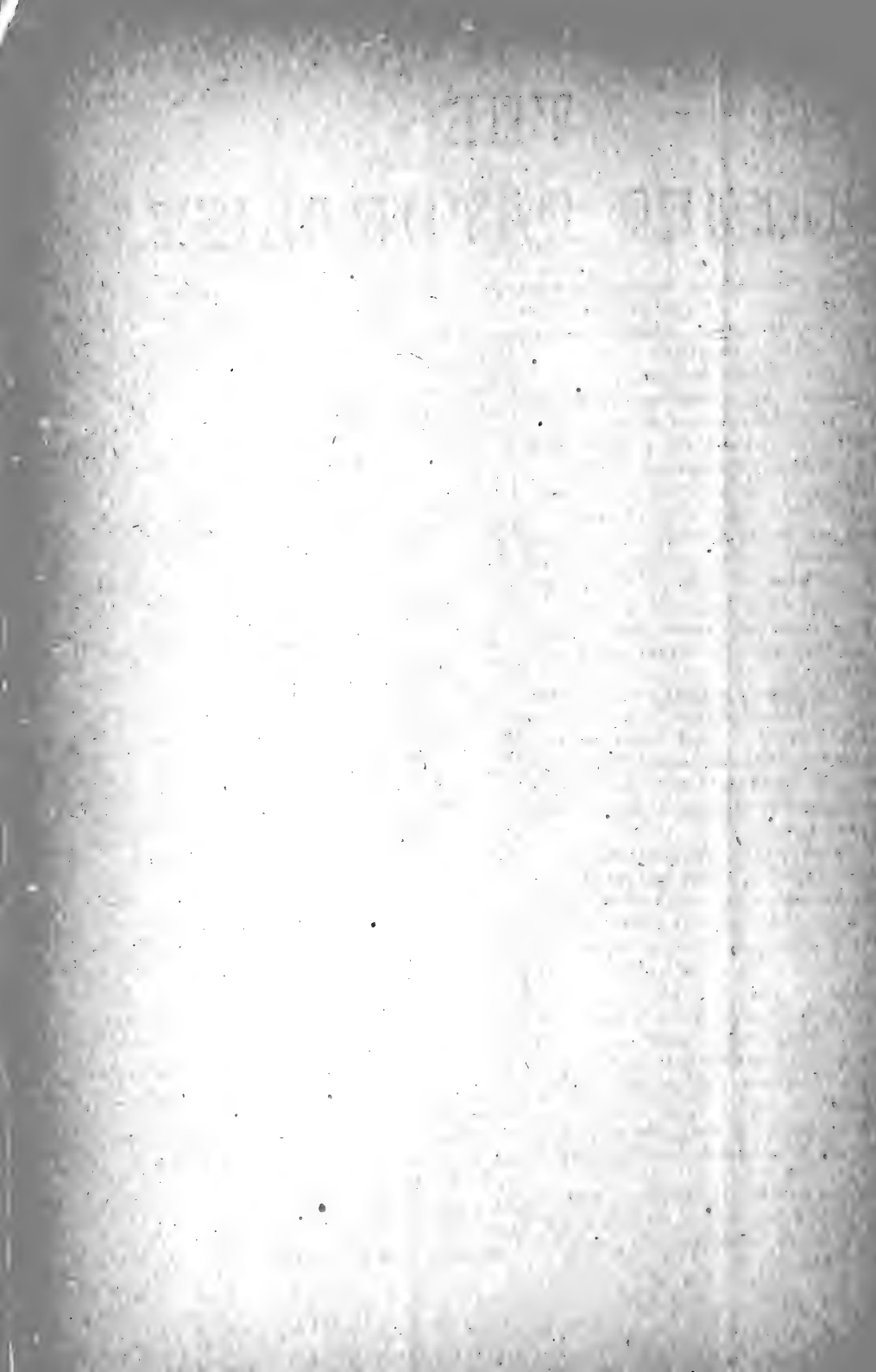
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# THE HOOSIER NATURALIST.

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## Panther.

(*Felis concolor.*)

Not many miles from our pleasant city is a chain of three lakes, several miles in length. Flint Lake, the easternmost, is the largest and is connected with Long Lake by a narrow channel, perhaps a quarter of a mile long. Mid-way of Long Lake on the northern side, a steep bluff, covered with a dense growth of oaks and bordered with hemlocks, projects some distance into the water.

Tom, Frank, and myself, had planned to spend a week or so of camp life at this point.

We had hired a neighbor with his cart to convey ourselves and luggage to the lakes. Making an early start we soon lost sight of the white sand hills bordering Lake Michigan, and about eight o'clock reached the north-eastern shore of Flint Lake.

Here we found an old-fashioned "dug-out" or canoe. Transferring our "traps" from the cart to the "dug-out" we bade our driver good-bye and pushed off.

Our craft tipped easier than it rowed, indeed we had to sit pretty straight to keep in it at all.

By vigorous paddling we reached the channel about noon. Here we stopped for a few minute's rest and consulted as to the best and easiest way to get through.

"If we only had a rope, we could tow the thing canal boat fashion," remarked Frank.

"No sooner said than done," replied Tom, as he fished from a bag by his side a long rope, evidently his mother's clothes line.

This answered admirably, and with Frank on one side of the channel and myself on the other, we hauled the old "dug-out" easy enough.

Reaching Long Lake we got into the boat and started for the bluff.

Selecting a good landing we soon had everything out of the boat which we proceeded to haul well up onto the beach.

We located our camp in the protecting angle of a large fallen oak and its up-turned roots, making, with the assistance of the oak on one side and the roots as a background, a half-shelter of hemlock boughs, over which we spread a large square sheet of ducking, as a protection in case it should rain.

In front of this and a little to the right we set up forked stakes and a "lug-pole" for our camp kettle. To the left we drove other forked stakes, in the crotches of which poles we placed to support the bottom boards from the "dug-out."

This was our table, from one end of which we ate our meals; the other being reserved for a workshop.

Laying in a good supply of wood for our campfire we took turns during the night to replenish it.

"Ugly noises, those last night," said Frank, as we were preparing our first breakfast in camp. "Couldn't sleep at all. Expected every minute that something would jump in on us and carry me off," said Tom.

I remarked that "something" probably would, had our campfire gone out.

However, we soon forgot about the

spitting and sputtering of the night in arranging our plans for the day.

Tom was intensely interested in coleoptera and I was enough so, to carry a bottle. There, there, it was only a cyanide bottle. Never tasted of anything stronger than sweet cider in my life.

Tom had a fine single barrel "Stevens" and I had a double-barrel gun of the same make. Frank was the crack shot of the crowd and owned a splendid Smith & Weston repeating rifle, which he could handle cowboy fashion, to perfection.

He was an expert angler, so it fell to his lot to supply us with fish, which he immediately set about to do, promising by noon to have enough to last us for several days.

Left to ourselves Tom and I started off along the shore. Insect life was abundant, and we spent several hours very pleasantly in collecting.

Returning we passed through a blackberry thicket and never before or since have we found green snakes so plentiful.

We could have captured more than a dozen each, easy enough, but contented ourselves with four. The pretty harmless creatures crossed our path on every side, disappearing in the thick briars.

It is a pity that people with scarcely an exception, will kill a snake whenever seen, no matter what kind, just so it is a snake. Leaving the snake thicket behind us we descended into a thickly wooded valley securing several fine

<sup>1</sup>Take a quinine, or any other large mouthed bottle, drop into it a chunk of cyanide of potassium, then mixing up some plaster of Paris, (gypsum) rather thin, pour it in till the cyanide is covered. Supply the bottle with a cork and any insect placed within the bottle is, in a few minutes, suffocated from the cyanide fumes.

<sup>2</sup>For more than ten years we used a single barreled Stevens with such excellent results that our collection was sold, several years ago, for nearly \$700.—[Ed.]

<sup>3</sup>The large majority of snakes we see are perfectly harmless, and should not be molested, as they are among the farmer's best friends, destroying thousands of injurious insects, mice, etc.—[Ed.]

partridges in a short time and just as we approached the opposite rise a large great horned owl sailed from its nesting place in a decayed stump and was brought gracefully to the ground by a charge of fine shot from Tom's "Stevens."

"Just what I've wanted for a long time," said Tom, as we approached Mr. Owl.

He was slightly wounded in the wing and would make a magnificent specimen. "If I was only home," said Tom "I would mount him at once. It is so much nicer and easier putting up a fresh skin than it is when a fellow has to soak it up and then stuff it. Wish I knew how to make flexible skins. Oliver Davis spoke about them in one of the H. N's. If his new book on taxidermy was only published. I mean to have one as soon as they are, anyway," "Hello there! what have you got, Tom," hollered Frank, as he came towards us. We had neared camp while we were talking and Frank, who had been watching for us came up.

"Fine old fellow. They make an excellent mark for a shot gun when on the wing," said Frank, as he rested his admiring gaze on the owl.

During the afternoon we had taken care of our specimens and dressed and salted down more than two dozen fine black bass along with several large pickerel that Frank had caught during the forenoon.

"Regular old 'Jumbos'" remarked Tom, referring to the pickerels.

It was a wild looking country around here without a sign of civilization and as the evening shades approached we thought and talked of the strange sounds of the night before.

Tom wondered what it was and thought perhaps it might have been a regular "painter."

"He probably had a severe set to of the colic," remarked Frank. But as Tom didn't believe in puns he failed to see point.



"Wish I could see one, a real genuine live panther."

"How do they look anyway?" said Tom.

I had never seen a living specimen but a group of three stuffed ones in James A. Harst's museum in Albany, N. Y., had especially attracted my attention while visiting there one afternoon. The largest one, an old male, must have been more than six feet long to the tail, which was probably three feet more. The body and legs were a uniform dark, reddish brown. The inside of the ears and throat were pure white, while the belly and inside of the legs were reddish-white.

"There isn't a panther within forty miles," said Frank.

Tom remarked that he didn't care to have one call just then and proposed that we lay in a good supply of fuel for the night and also that we make a fence around our shelter. Feeling that it could do no harm to build a fence, I assented, and in a short time we had quite a substantial wall of stakes several feet apart and six feet high, tied together at the top with Tom's rope. Then we took evergreen boughs, weaving them together as thick and compact as possible, leaving a small entrance just in front of the fire. Overhead was the thick dark foliage of a large fir. Looking around at our work Tom expressed himself as more than satisfied and even Frank thought it an excellent idea.

Leaving Frank and Tom to prepare supper, gun in hand, I strolled toward the lake, and there, right before me was a large coon bent on a frog supper. At the report of my gun both the boys came tearing out to see what was the matter. Tom had a big stick and Frank his repeater ready to shoot all creation if necessary. We all had a good laugh and then carrying coony into camp immediately set about skinning and soon had four fine hams swinging over the fire and with fish boiling in the kettle and more roasting on the coals, our supper

promised to be a genuine treat if it was late.

The savory odors, however, reached other noses than ours and attracted visitors we had no desire to associate with.

Tom was watching the fish and coon. Frank was reading aloud from the last "Auk" and having just stirred up the fire a little on one side, I was sitting close by with the unburnt end of a large blazing pine knot in my hands, when we were startled by a repetition of the pawls of the night before, apparently from immediately overhead.

It all happened in a moment, much quicker than I can write it, now I assure you.

Tom turned pale and stood staring at me. Frank dropped the "Auk" and jumping into the shelter grabbed for his repeater.

The branches swayed a moment overhead and then an immense fiery-eyed animal bounded down amongst us.

Tom gave an unearthly yell and jumping clear over the fire, upset the boiling fish, sent the coon spinning into the brush we had prepared for the fire and almost knocked me off my feet.

I can remember wondering why Frank didn't come out with his rifle and even thought that perhaps he had fainted from sheer fright, yet Tom had scarcely leaped the fire before I had raised the pine knot and swinging it around my head hurled it with force directly at the animal with brilliant eyes, hollering with all my might at the same time.

I couldn't say, nor Tom either, whether the blazing knot struck him or not. Anyway, as Frank came running out with his repeater, the creature with a furious baffled snarl leaped up on the roots of the oak and then into the branches of the fir overhead.

"Gracious!" exclaimed Tom, "I thought my camp days were gone sure." "I couldn't find my rifle. Where has he gone to?" said Frank. "Evidently he is over our heads," I remarked as I picked

up my gun with one hand and the blazing knot with the other.

"What's to be done?" said Tom.

"Shoot him," replied Frank.

"If it was only daylight," continued I "we could see him and could, no doubt, shoot him in the tree."

"That's easy enough," said Frank.

"Well, how?" asked Tom.

"Get me a long pole and I'll show you how," replied Frank, as he opened his jack knife and stripped off some bark from a ghostly birch, standing near. Rolling this up into a torch he tied it to a pole I had found for him and picking up my pine knot soon had his torch blazing at a great rate.

Thrusting it slowly up it lighted all the surrounding foliage. Seeing this, the creature, with an angry splutter, leaped up higher.

"There he is!" cried Tom wild with excitement. "My! what an ugly looking customer."

Tom had taken my gun and Frank was watching for an opportunity to fire. "Quick! quick!" yelled Tom, "he's going to jump."

Frank fired. A short, sharp angry cry followed, then a long savage growl. The branches trembled under his immense weight.

"You've hit him sure," yelled Tom. "There! there! he's falling!" and sure enough, after holding on a moment or so, he fell heavily to the ground. Directing a few hard hits from a heavy club I helped finish him up.

We dragged him into our enclosure and a more frightened looking set of fellows you never saw.

We stirred up the fire and piled on more brush till we had a rousing fire. The roasted fish were burned up as were the boiled ones. The coon shanks were hanging in our evergreen fence. These we replaced over the fire and getting out some more fish set about getting supper again.

Tom kept the fire between himself and

the cat, for that was evidently what it was, and every little gust of wind caused him to jump and turn pale.

Finally we had supper ready. Even yet we were highly excited and though we all relished the coon, we didn't eat as much as we would have done under different circumstances.

After supper I motioned to Frank to take his rifle and picking up the axe we sallied out of our enclosure, with Tom between us as torch bearer. I cut enough evergreens to choke up the door, which we did as effectually as possible. Then we got an extra piece of ducking and stretched it across the top of our enclosure.

It was growing late and notwithstanding our scare we were getting sleepy. The fire was kept agoing all night. Fortunately we had no more callers.

We were astir bright and early the next morning and after breakfasting on boiled fish and hard-tack we set about measuring the cat, catamount, "painter," panther, American lion or whatever it was, and found him to be six feet, one inch from the nose to the roots of the tail; length of tail three feet, two inches. "The whole body was covered with a soft dense fur, forming on the sides of the neck an indistinct collar; ears pendulous, with hair without and within, projecting beyond the margins; the whole body light reddish-gray, with oblong irregular blackish-brown spots." This was evidently a young northern panther, (*Felis concolor*) which had, no doubt escaped from some traveling menagerie.

The ball entered the breast and passed completely through the animal, breaking a rib which was forced into the heart. We dragged the carcass down to the lake and then skinned him. Exhausting our supply of arsenic Frank started out afoot for the nearest village and buying all that was in the place he hired a delivery wagon, the only thing he could get, and drove back to Flint Lake.

In the mean time, Tom and I broke camp and packing up, started for the channel.

We managed to get back precisely as we came up, and as the wind was in our favor we made the landing with ease, and had taken our baggage from the dug-out before Frank drove up.

The skin was spread out and covered with arsenic, for which, by the way, he had to pay 50 cents per pound and could not even at that price obtain more than two pounds.

At the first express office the skin was boxed up and shipped to a furrier in Chicago, where it was tanned and then lined, the head of course being mounted.

It makes a fine rug and every time I visit Frank, we always have to talk over our short camp life on Long Lake.

N.

### Commercial Insects.

BY H. M. DOWNS.

In observing the gauzy-winged dragon fly, the beautiful butterfly, the slow-moving caterpillar, or the pestiferous mosquito, one would naturally suppose that the insect world was a useless appendage to nature or only placed in this order of things to feed upon useful plants, and to furnish food for higher and more useful animals. But among the insects are found sources of great commercial and individual wealth, and the trade in insects is far more extensive than most people imagine.

The cochineal insect (*Coccus cacti*), one of the "scale insects," belonging to the family *Hemiptera*, is found in various tropical countries, the larger supply coming from Mexico. These insects are rather remarkable, in that the male and female are so unlike; the former presents an elongated, depressed body of a dark brown-red. Head small, with two long, feathery antennæ, and a rudimentary beak. The abdomen is terminated by two fine hairs larger than the body. The wings are transparent and reach beyond the extremity of the abdomen and

cross each other. The female is of a dark-brown color, is twice the size of the male, and is convex and flat below. The larvæ are born in the dried up body of the dead mother, her skeleton serving as a cradle.

This insect, as is almost universally known, furnishes, when its body has been dried and reduced to powder, a coloring matter of a beautiful red. Therefore, in hot climates where the insect is found, it has been preserved and cultivated. In Mexico "an open piece of land is chosen, protected against the west wind, and of about one or two acres in extent. This is surrounded by a hedge of reeds, planted in lines, distant from each other about a yard, with cuttings of cactus at about two feet apart. The cactus garden made, the next thing is to establish in it the females of the cochineal insects, which are gravid, are taken off plants which have been sheltered during the winter, and placed in dozens in nests made of coca-nut fibers, or in little plaited baskets made of the leaves of the dwarf palm, and hung on the prickles of the cactus. These are very soon covered with young larvæ. The larvæ are changed into perfect insects which take up their abode on the branches of the cacti. The Mexicans gather them as soon as they have entered the perfect state." Many thousands of people gain a livelihood by gathering them from the cactus plants, knocking them off with a blunt knife and killing with boiling water. They are then dried and packed in bags for shipment. It is estimated that every pound contains about seventy thousand of these insects, so that the supply must be very great.

Perhaps the best known "commercial insect" is the common hive bee (*Apis mellifica*), whose product, called honey, forms an extensive trade, as does also the article known as beeswax, with which all seamstresses are acquainted. The study of a hive of bees, observing their manner of work, will, in every in-

stance, more than repay the student, particularly if he wishes a lesson on industry.

The silk-worm moth (*Bombyx mori*), is one of the most interesting and the insect which has done the most for commerce. It was originally a native of China, and the neighboring parts of Asia, but it is now bred and reared in nearly all parts of Europe and America, so that now silk stuffs are comparatively common and cheap. The silkworm is a caterpillar, which, in due time, undergoes its metamorphoses, and becomes a moth. At birth and for the first ten days the worm is blackish. As it grows it casts its skin at certain intervals and turns white or bluish, and when ready to spin its cocoon, becomes yellow. It is slightly covered with hairs, and has a little fleshy tubercle on the upper part of the posterior ring. The worm feeds upon the mulberry. Before spinning it fasts thirty-six hours, becoming soft and flaccid. Two or three days are occupied in spinning the cocoon; and the thread is stated by Count Dandolo to be sometimes six hundred and twenty-five yards in length. The worm then changes to a chrysalis and after remaining twenty days, the moth appears, the males dying soon after, the female as soon as the eggs are laid, which are attached, often to the number of five hundred or more, by a gumming substance, and they hatch in the ensuing spring.

Sac-dye, another beautiful red or a very deep pink, is the work of an insect though it has been counted among the vegetable products. Nut-galls are formed from a puncture in the young oak, by a species of fly, which there deposits her eggs. An irritating fluid causes the limbs to swell like a tumor, often to the size of a marble. These balls are much used in medicine, in dyeing, and in the manufacture of ink.

#### Orphan Robins.

Last summer when I was spending some weeks at a delightful resting place

in the mountains of Pennsylvania, the hotel-keeper, a very intelligent and observing man, pointing to a large cherry tree in front of the house remarked:

"In that tree, in the early part of the season, was a robin's nest in which three young birds were in due time hatched out, to the manifest joy of the old ones, by whom they were regularly fed for several days. The male bird was then shot by a young man who was gumming in the neighborhood, and they were left to the sole care of the mother bird; but in a day or two she was also killed, and the little ones were left as helpless orphans. The very next day a wren, seeming to understand and taking compassion on the forlorn state, installed herself as mother, and regularly fed the young robins by day, and brooded over them at night, till they were strong enough to leave the nest; when, encouraging or teaching them to fly, she still cared for them till they could take care of themselves, and then left them."

#### Maine Notes.

GEORGE H. BERRY.

No. 498. Winged Phœniceus (*Agelaius phœnicus*.) Abundant. Commonly called Redwings. Jet black, with a buff spot on shoulder that when the bird expands its wings in flight appears of a crimson. There is a meadow at the head of the pond which is flowed in spring. Taking a boat and rowing among the bushes I have found as many as sixty of their nests in a day. The nest is composed of grass and weeds and usually placed in a white alder or laurell bush about three feet from the water. The eggs average .1x.76, and generally number five. Color varies from bright greenish blue to a purplish clay, marked with scrawls, blotches and zigzag lines of purple slate and black. The marking of these eggs is extremely variable. One set may have a few round dots of brownish purple distributed over the eggs. Another a ring of lines around the large end with the end covered with shaded browns, while still others may be so nearly unspotted as to have the color in shadings or deep shell markings or perhaps a single waved line of purple or deep black. Nest in May and June. The birds always go in flocks.

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THE NATURALIST is of necessity several pages smaller this month.

If your subscription expires with this number, please renew it once.

PROF. A. E. FOOTE, of Phila., Pa., will have an immense display of geological specimens at the Louisville Exposition.

WE expect, in a few weeks, to run an excursion from this city, via Louisville, (visiting the exposition there), to the Mammoth Cave. Arrangements are not yet fully perfected.

What with repairing our boiler and engine, papering, painting and cleaning both store and office, and with an extra job of 92000, 48-page pamphlets, we are satisfied that the NATURALIST is even as large as it is. We expect to make amends with the next issue, as we have several fine articles on file which have been crowded out for several months.

J. B. HULING of Chicago, has our thanks for a copy of "Suggestions in Punctuation and capitalization." It is a neat, square, 16mo., of 24 pages, and we were so favorably impressed with its many commend-

able features that we ordered one hundred copies. Any of our friends desiring assistance in punctuation and capitalization can not expend twenty-five cents to better advantage. To subscribers of the NATURALIST we will mail the pamphlet for twenty cents.

*Godey's Lady's Book* continues to hold its own, just as it has done for these many years.

F. GRUBER, of San Francisco, Cal., has favored us with several interesting clippings which will appear next month.

AMERICAN SYSTEM OF EDUCATION: As it is and as it should be; is a pamphlet of 16 pages, sent with the compliments of J. I. D. HINDS, PH. D. Mr. Hinds is a professor of Chemistry in Cumberland University, Lebanon, Tenn.

TRANSACTIONS of the Wisconsin Academy of Science, Arts, and Letters. Vol. VI., 1881-83. 356 pages, with many illustrations, maps and tables. Ancient Villages among Emblematic Mounts, by Rev. S. D. Peet, of Clinton, Wis., and Migration and Distribution of N. Am. Birds in Brown and Ontagamie Counties, especially attracted our attention.

WE are well pleased with the first number of *The Young World*. It has ten pages of interesting matter and is well worth the 50 cents subscription price asked. Single copies 5 cents. Address the publisher, at 2318 Eighth Avenue, New York City.

WE are always gratified when subscribers express their appreciation of our NATURALIST. We have heard from several advertisers lately, who were delighted with the results even a small "ad" had brought them. This is encouraging, of course, and we hope all our advertisers will receive ample returns.

WE can supply a complete set (81 vols.) of the Second Geological Survey of Pennsylvania, for only \$65. They are of immense value in a Scientific Library and in a few years cannot be had at any price. They are worth one hundred dollars and many sets have been sold for more than that. Parties desiring the above as an addition to their libraries should send to this office for a list of the books.

# TAXIDERM.Y.

(Continued from last month.)

## TO PRESERVE SKINS.

In a temperate climate the old and familiar method is to rub the skins with powdered alum or dry arsenic, or alum and saltpeter, wrap tow around the leg bones (of small mammals), and dry the skins. Let me here call the attention of all collectors to the following fact:

A mammal skin which has never been dried and hardened can be mounted in one-third less time and with far greater accuracy than the best dry skin of the same kind.

This being the case, it is certainly worth while to preserve skins in a soft state. A skin may be removed very unskillfully, but if kept soft until it reaches the taxidermist, it can be mounted with gratifying success. On the other hand, the dry skins of the most experienced collector can be mounted well only with great difficulty.

The best of all methods for any climate, and all kinds of skins, is to prepare a solution of salt and alum in water in the following proportions: For every gallon of water, put in one pint of alum (three-fourths of a pound) and one quart of salt (one pound and three-fourths), stir it up, and heat it to the boiling point. Pour it into a wooden or earthen vessel, and when cool, or milk warm, it is ready for use. Plunge a skin into this bath and move it about until the solution reaches every part. Give a fresh skin plenty of room for a day or two, and if it be a large one move it about every day for three days so that the solution can act with full force on every part.

Fresh skins of all kinds may be placed in this bath (leg bones and skull of small skins may also be left attached) and allowed to remain in it for months without deteriorating in any way; even after five years they are still as soft and pliable as when first taken off.

In a tropical climate skins must be immersed either in the salt and alum solution, or alcohol. Drying skins in the tropics is extremely difficult to accomplish *successfully*, and should be adopted only as a last resort. After removing and cleaning a skin, apply arsenical soap to the inside; then rub on powdered alum, *very freely*, over every portion. Wrap a little tow, oakum, rags, or even paper around the leg bones, turn the skin back over them, put a little

loose filling in the head and body, and take a few stitches in the skin to hold it in shape. *Do not put the skull back in the skin*, but tie it to one of its fore legs. Comb the hair neatly, put arsenical soap and alum on the palms, face, and ears, and hang the skin up to dry *in the shade*, where the air will circulate around it.

## CORRESPONDENCE.

MR. EDITOR:

In the article "Formicadae Ants" in your June issue, page 175, a statement says, "Ants do not lay up a store of food for the winter; Ants do not eat grain."

Now, so far as our northern ants are concerned, this is very true; but it must not be inferred that no harvesting ants exist.

Westwood says; "Colonel Sykes, in his history of *Pheilotole providens* has clearly proved that this Indian species collects so large a store of grass seeds as to last from January and February, the time of their ripening, till October; having observed on the 13th of the latter month, these insects engaged in bringing up their stores of seed to dry after the closing thunder storms of the monsoon;" an observation since confirmed by other naturalists.

A number of South European ants, such as *Atta structor* and *Atta barbara* are also known to be harvesting ants.

A Texan ants also, *Pogonomyrmex barbatus*, is an agricultural species, storing up the grains of *Aristida* and *Buchlaedactylodes*.

In fact, all entomologists now agree that many ants harvest up grain for winter use.

J. D. SHERMAN JR.

Peekskill, N. Y.

My Dear Sir: I am heartily in sympathy with the noble object of the "Hoosier Naturalist" and approve highly of your efforts in awakening a more general interest in scientific knowledge.

I will endeavor to help you in your interests as much as possible. You may place my name among your correspondents and cooperators. I will shortly send you contributions for the H. N. and will do all I can to obtain subscriptions.

I have the honor to be, my dearsir, your most faithful servant.

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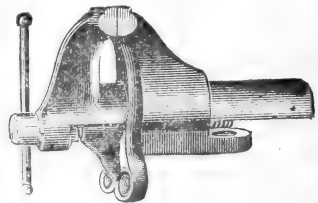
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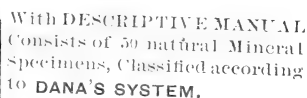


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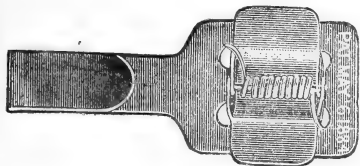
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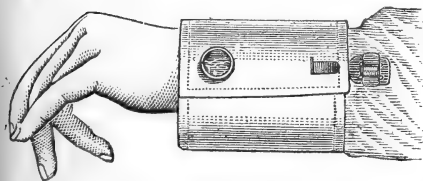
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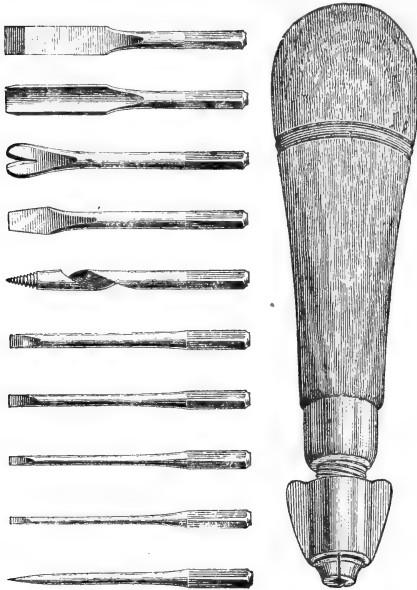
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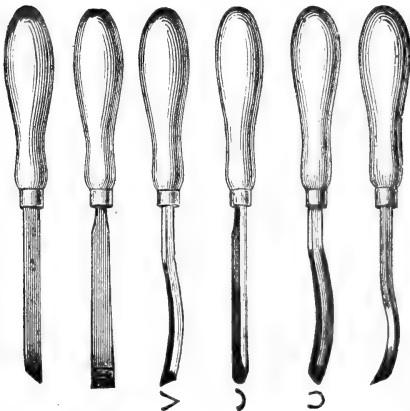
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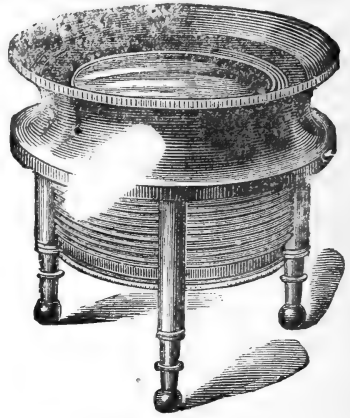
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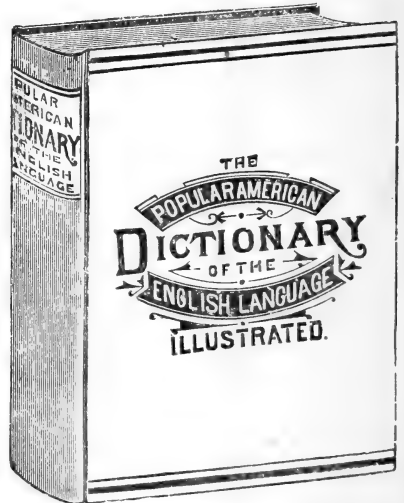
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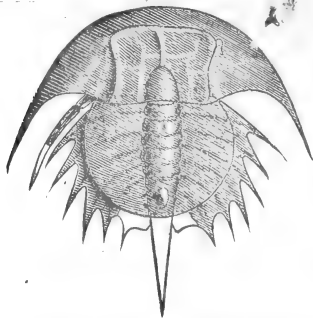
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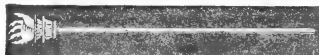
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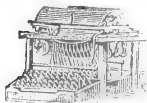
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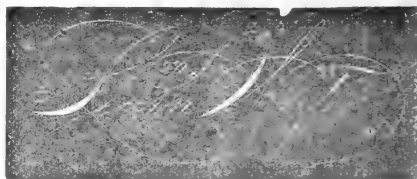
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THE  
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# THE HOOSIER NATURALIST.

VOL. II. NO. 2. VALPARAISO, IND., SEPTEMBER, 1886. { PUBLISHED MONTHLY  
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**American Bison.**  
(*Bos americanus*.)

This animal is peculiar to our continent and is a near relative to the musk-ox of the Arctic.

It is commonly, though erroneously called buffalo, which is a native of the old world.

The bison has short and blunt horns. Its "hump" shoulders and head are covered with a dense growth of shaggy hair, which sometimes sweeps the ground, giving it a most ferocious appearance, and though the bison is not a large animal, it frequently attains the weight of 2000 pounds.

Were the bison possessed of the same activity and nimbleness of motion as the mustang, in addition to the "bovine rage" with which it seems so easily inspired, together with its peculiar manner of traveling in closely packed incalculable columns, "it would be the most formidable brute on earth, and could trample the mightiest armies of man like grass in its path."

Nature, itself, cannot furnish a single object so terrible, as the headlong advance of a great herd, sometimes 15,000

in number, when once thoroughly aroused.

Years ago it was abundant in nearly every part of the United States north of New Mexico, and countless thousands roamed the plains at pleasure.

Today they are confined to a few miles of territory east of the Rockies and are rapidly becoming extinct, although occasional herds of several thousand may yet be seen.

Bison hunting\* is exciting and oftentimes dangerous sport.

The most barbarous, dastardly method in practice by the Indian, is to stampede a herd in the direction of one of the many yawning fissures which suddenly open up on the great *Plano Estacado*.

Nothing more strongly illustrates the ignorance and barbarism of the Indian, whose sole dependence is (was) upon this animal, than the constant recurrence of these wholesale massacres.

Whenever they come upon a herd, however immense, and are successful in urging the "panic-stricken masses over the abyss, then, bounding from rough point to point—down! down! is writhing, sweltering slaughter, such as could rejoice only those Red Demons of destruction."

The "Prairie Surround," in point of wholesale slaughter, so peculiar to the Indian, comes next. As the name indicates some herd is widely surrounded by scores of dusky Indians, who, yelling only as it is possible for Indians to yell, rapidly close up, and the frightened animals rushing from its circumference to the center in a maddened headlong crush upon each other meet, in a helpless

swaying bellowing mass, while amidst the dust clouds of the collision the indistinct forms of the yelling warriors, who have sprung from their horses to the backs of the bison, are seen rapidly thrusting the sharp point of their long lances into the helpless victim below them.

Thus in a few minutes thousands are wantonly destroyed simply for destruction's sake and to satisfy their hungry greed for gore.

Thousands and thousands of bleached skeletons may yet be found, scattered over the vast prairies, that speak forcibly of the bison that have been slaughtered, not only by the Indian, but by the white man, as well.

There is probably not a well-to-do farmer in the whole United States but what owns at least one "buffalo robe," taken from the back of a bison.

Thousands are made into great coats; as many more go for boots. Every museum of any consequence either has an entire bison stuffed or a shaggy head.

Stuffed heads of the bison may be found in many hotels, restaurants, private dining rooms and halls.

Vast fortunes are accumulated by gathering up their bones and converting them into fertilizers. So great has been their destruction that in less than a score of years, unless the government interceeds in their behalf, the bison will almost be an extinct species.

And now, fearing to weary the readers of the NATURALIST, I will close with an anecdote from Wood, which illustrates the dangers often incurred by the hunter when on foot.

"One beautiful, clear morning in January, I started to shoot some prairie fowl. I had not been long out, when an Indian overtook me, and said in Sioux, 'Ho, my friend! I saw the track of your long foot in the sand!' He wanted me to help him in stalking up three bison bulls that were feeding in some hollows at a little distance. I accordingly start-

ed off with him, and we came within about a third of the spot. I went carefully round to the leeward, and directed the Indian to go and give them his wind, by approaching on the other side, so soon as he thought I had reached my intended post, whither I knew they would make in order to pass through to the open plain. So accurately had the Indian calculated time and distance that I was hardly at my place, when a huge bull thundered headlong by me, and received a shot low and close behind the shoulder as he passed. He stumbled on for about ten paces, and lay quietly down. I waited to reload; and on going up, found him stone-dead. The Indian then joined me, and said that the other two bulls had not gone far, but had taken different directions; so we agreed that he should pursue one and I the other. I soon came in sight of mine. He was standing a little way off on the open plain. But the skirting willows and brushwood afforded me cover within eighty yards of him, profiting by which I crept up, and taking deliberate aim, fired. The bull gave a convulsive start, moved off a little, and turned his broadside against me. I fired again, over a hundred yards this time, but he did not move. I loaded and fired the third time, whereupon he turned and faced me, as if about to show fight. As I was loading for a fourth shot, he tottered forward a step or two, and I thought he was about to fall. So I waited for a little while; but as he did not come down, I determined to go up and finish him.

Walking up, therefore, to within thirty paces of him, till I could actually see his eyes rolling, I fired for the fourth time directly at the region of the heart, as I thought; but to my utter amazement, up went his tail and down went his head, and with a speed I little thought him capable of, he was upon me in a twinkling; but he rapidly overhauled me, and my situation was becoming anything but pleasant.

Thinking he might, like our own bulls, shut his eyes in making a charge, I moved suddenly to one side to escape the shock; but to my horror, I failed in dodging him, for he bolted round quicker than I did, and afforded me barely time to protect my stomach with the stock of my rifle, and to turn myself sideways, as I sustained the charge, in hope of getting behind his horns, he came plump upon me with a shock like an earthquake. My rifle stock was shattered to pieces by one horn, my clothes torn by the other. I flew into mid air, scattering my prairie-fowls and rabbits, which had hitherto hung dangling by leather thongs, in all directions, till at last I fell unhurt in the snow, and almost over me, fortunately not quite, rolled my infuriated antagonist, and subsided in a snow drift. I was luckily not in the least injured, the force of the blow having been perfectly deadened by the enormous mass of fur, wool, and hair that clothed his shaggy head-piece."

#### Ants, Black Appis and Red Spiders.

If any of our readers, interested in flowers, are troubled with ants in the ground, under rose bushes, violets being destroyed by red spiders, or shrubbery generally infested with green and black lice, send to Rochester, N. Y., for Vick's *Illustrated Monthly*, for September. Price ten cents, and you will learn how to be rid of the pests.

#### Sea Serpent.

The New York *Weekly Tribune* reports a sea serpent in the Hudson river and presents the ideas of Professors Gill and Goode, of the Fish Commission. It is hoped that the monster may be captured.

#### Dead Ducks.

Vick's *Illustrated Magazine* for September, has a very good illustration of a lifeless mallard duck

#### Remarkable Collection of Homing Pigeons.

An enormous flight of pigeons consisting of some 700 or 800 birds, took place at Dover, England, on the morning of Aug. 30, for a race from that place and Brussels. The birds were brought over on Saturday night in baskets, which formed part of the deck cargo of the Ostend mail packet. The pigeons belong to different Belgian Societies, and were flown in connection with the Society Sans Pere, of Lalken, near Brussels. The start was a very interesting sight. The channel being fairly clear, the baskets were placed in tiers on the quay, the flaps on a given signal were let down, and simultaneously the birds rose like a cloud, and after circling in the air for a moment, headed southward and made off in the direction of Calais, all being well away within the space of two minutes. As our readers probably know, the training of homing pigeons has become the national sport in Belgium. Almost every family has a pigeon chamber in the upper part of the house. Baseball in the United States is nothing as compared with the homing pigeon sport in Belgium.—*Scientific American*.

#### American Association for the Advancement of Science.

At their recent meeting in Buffalo, Mr. Lancaster, of Chicago, read an interesting paper on the flight of birds. He claimed to have constructed floats that had sustained themselves in the air for several days, but disappointed the assembly by refusing to exhibit a model, although members offered \$1000 for a model that would work. Even scientists are not content with mere statements. They like to see demonstrations.

#### Albino Swallow.

A white swallow was shot near North Haven, Conn. It was a perfect albino, pink eyes, and all.—*Scientific American*.

## Maine Notes.

BY GEORGE H. BERRY.

No. 507. Baltimore Oriole, (*Icterus galbula*.) Common. Bird orange and black. Called English robin, golden robin and hang bird. They build their nests usually in high elms, but I have found them in maples, poplar, and once in a dead apple tree. The nest is a hanging pouch composed of strings, grass, wool, etc. I found one last year that was composed entirely of the seed pods of the willow. It was the prettiest piece of bird architecture that I ever saw. Eggs measure .95x.61, and are rather pointed. Sets usually 4 to 6, color dirty white, marked with wavy and zig-zag lines of purple umber and black with faint shell shadings of brown. Nest in June.

No. 511. Purple Grackle, (*Quiscalus quiscula*.) Common. Usually seen in company with the redwing, called here crow blackbird. Nesting places vary. They usually nest here in willows, in meadow over water, making a bulky nest often a foot in height, and placed from one to four feet from the water. In May they nest in pine trees, sometimes a dozen pair building together at heights of from forty to fifty feet. Eggs .120x.90. Number in set, five or six. I have found seven. Color bluish green, blotched, marbled and lined with brown, purple and drab. Occasionally an egg may be found that is of an olive tinge, but rarely.

No. 488. American Crow. (*Corvus americanus*.) The crow is almost omnipresent here except in the severest winters he is with us, and in spring, summer and autumn we see and hear him, and many of us heartily anathematize him. He is a dear lover of sprouting corn and potatoes and carries his love of such good things to such an excess that he will work all day in the field pulling up what

was meant to grow. He is a thief also, for he will watch his chance and take eggs and young from any nest of other birds that he can get an opportunity. Crows have been known to kill young chickens and turkeys and when one gets in this habit they are bolder and more destructive than a hawk. The young are easily tamed and make amusing pets, although very mischievous. The crow is black, with greenish and purplish reflections and nest in trees, principally evergreens, at a height varying from ten to fifty feet from the ground. They generally lay five eggs, measuring 1.50x1.18, and varying in color from light green dotted and blotched with black brown and olive to a dark olive green marked and spotted with darker shades of the same. The nests are to be found in April, and as old nests are always plenty it is well for the collector to carry a light axe with which to strike the butt of the tree in which the nest is placed. The consequent vibration nearly causes the crow to fly from her nest, but not always. I remember an amusing incident that occurred to me this spring. I had been out with a friend hunting eggs and we came to a tree where we both suspected there was a nest, as we had heard the feeding cry of the old one there several times. We struck the tree several times, but to no purpose. Finally Frank said he would climb the tree. As he was climbing up the tree to the nest we were walking back and forth, when suddenly I heard him give a signal for silence, and immediately after the cry of a crow. Looking up in amazement I saw a crow fly from the tree and a handful of tail feathers floated down. She had three eggs nearly hatched and had staid on her nest till he was near enough to grasp her tail, which projected. It was a very windy day, and perhaps that accounted for it but my friend always asserted that "that crow was deaf or a fool."



### The Busy Bee.

How doth the little busy bee  
Improve each shining hour,  
And gather honey all the day  
From every opening flower!

How skilfully she builds her cell!  
How neat she spreads the wax!  
And labors hard to store it well  
With the sweet food she makes.

### The Bee's Pockets.

Bees are very curious little creatures, and the most useful of all the insects that fly. They are only about an inch long, and what wonderful work they do, making so much honey and wax all the summer long! They know, too, all about every flower in our gardens, and all the signs of the weather. When they make their honey, I wonder if you know how they get materials. Let me tell you. Bees have slender pointed hairs upon their heads. The yellow hairs upon their legs, which we can see with the naked eye, turn out to be hard, horny sort of combs, which they use in the gathering and storing of the pollen of flowers. Besides this, the bees have two little baskets upon their thighs, which are the very perfection of side pockets, just such as we should want for a similar purpose. But what do you think they they do with these pockets? They first tuck their little heads into the heart of the rose or lily, or other sweet flower, for honey. In doing so they cover themselves all over with the yellow dust,

which is the pollen. Then they take their forefeet and brush it very carefully from the hair, and pass it on to the middle feet, and on again to the hind feet, when it is safely packed in those little pockets on the thighs. As soon as they are loaded down, they fly home. Some of the pollen is given to their babies, and some of it is worked up into wax. This, you know, is used to make the cells. Some of it, called propolis, they use to punish intruders, giving them a sort of "tar and feathering." The bees are so industrious, that in a few days, by the use of these pockets, they can half fill the hive with honey-comb. And then the wax is used for a great many purposes. When you look at your beautiful dolls, don't forget that they are made by the bees. Much more might be told about these industrious little creatures. But you can find out a great deal for yourselves, my dear young friends, if you will hunt up a hive and watch the doings of the bees.—*Ex.*

### That Humming Bird's Nest.

It being a very warm day (June 23d) I lay down in an orchard, under a tree. I had not been there long before I saw a humming bird (*Trochilus colubris*) peering at me from her position on a small alder bush near by. She would smooth parts of her feathers and then regard me for a moment and I began to suspect that the nest was not far away and resolved to see it if possible. My lying quiet for some time seemed to remove all suspicions she may have had of me, for she flew to a limb, not ten feet away and poising herself for a moment above it, dropped down on what at first sight appeared to be a moss-covered knot, but which I at once recognized as a humming bird's nest; that long coveted treasure that I scarcely dared, hope to ever find. The instant I moved, the nest was vacated by its fair inhabitant.

The nest was about seven feet from the ground. Upon looking into it I saw two pure white eggs which measure about .49x.30 inches. The shell being so very frail it was a delicate job to blow them. As the nest was placed on the upper side of a slanting limb, one side was built much higher than the other. The nest measures—

Height, at highest point,	1 inch
“ “ lowest “	.60 “
Outside diameter,	1.75 “
Inside diameter,	.75 “

This, I regard as a very large nest, as two others in my possession are *much* smaller, one of them being—

Outside diameter,	1.37 inch
Inside diameter,	.64 “
With a height of	.62 “

It is composed principally of down, gathered from the willow bush. This is covered on the outside by small bits of green moss, and around this moss is wound a number of spider webs. So small is the nest and so much does it resemble the color of the limb on which it is placed, that it would be utterly impossible for an ordinary passer-by to detect it, even were it within three feet of his very eyes; and of all the beautiful specimens of bird nests I ever saw, this is, in my estimation, the finest.

JOHN O. SNYDER.

### Prairie Chickens Abundant.

I recall no season during the past nine years when prairie chickens have been so numerous as I find them this year in Iowa and Nebraska. This abundance is largely due to the fact that the prairie fires this year did not come until the eggs were hatched, and the young broods were able to escape from the devouring element. The fact, however, that game laws have been passed, and are being enforced for their protection, affords one explanation for this abundance of birds. In all the far west, organizations are being ef-

fecting to secure the enforcement of the laws for protecting chickens; and whereas formerly the birds were killed at all times with impunity, now, when shot out of season, the offenders are liable to punishment. Colonel Robert Ingersoll, in alluding in a private conversation the other day to the feeling existing in a certain western region against unlawful bird killers, observed: "I would rather be tried by a jury of citizens for murder than by a jury of farmers in that locality for shooting prairie chickens."

When this same rigorous spirit pervades the farmers of Illinois, Iowa and the other adjoining States, prairie chickens will increase and constitute, as in earlier years, an important element of food. All that is required is proper care and protection, a determination on the part of sportsmen to obey the laws, and a determination on the part of farmers to punish those who violate them.—*David W. Judd, Western Letter to the American Agriculturist.*

### "Night Hawk."

For the HOOSIER NATURALIST:

This bird is known by several names, such as "Bull Bat, Pisk and Goat Sucker." This hawk is very plenty in western New York. It is seen mostly during fall migrations, when they collect in large numbers. At evening, or about 5 p. m., they can be seen flying around catching their much desired insect food, and are, therefore, a beneficial species. I shot a fine specimen of this bird August 28th. Its stomach contained a half teaspoonful of "flying ants." This bird nests on the ground. It builds no nest, but the eggs, two in number, are laid in a slight hollow.

The young when hatched are downy. The female will not leave her nest until nearly trodden upon, then she flutters along the ground as if her wing was broken. The eggs are elliptical in form and blunt at smaller end. Their color is hard to describe, but generally of gray-



ish white mottled with purplish grey, over which are scratches of a darker color. Their size varies a good deal.

ALBERT G. PRILL,  
Springfield, N. Y.

### Good Words.

*The Garner*, of 25 Wausey street Walworth (S. E.) England, in its July issue said the following of our HOOSIER NATURALIST:

"We have been favored with this year's numbers of a new natural history journal called 'The Hoosier Naturalist.' It is published at Valparaiso in Indiana, U. S. A. It is cheap, full of bits characterized by the usual Yankee smartness, pictorial, comical, poetical, prosaic and abounds in 'ads,' as advertisements are called, which obtrude themselves upon one anywhere between the top and bottom of the outside cover. It has a great deal of miscellaneous information, original and otherwise, but it contains more about birds than any other group of animals.

As a sample of the style of article furnished we have reprinted what 'The Hoosier Naturalist' has to say about the blue jay (*Cyanocitta cristata*)."

Here came the story of the jays and we take pleasure in printing the following from the Sandwich, Ill., *Free Press*, in connection with the above:

HOME, FROM AFAR.

"In an editorial, in the *Free Press*, last winter, the story of a season's life, of a pair of blue jays was told. Some of the neighbors took it up and printed it, giving this paper due credit. Due thanks were rendered for the compliment and the thing passed from mind. Last week it came back. Away off across the sea, in great London, the mightiest city of the world, is published a journal of natural history, called the *Garner*. Now our friend, R. B. Frouslot, lives over at Valparaiso, Ind., and publishes the *Hoosier*

*Naturalist*, which he keeps just chuck full of things about birds and insects. Well, the two journals exchange, and last week he sent to this office, the July number of the *Garner* with that story of the home life of that blue jay and his family, just as we told it in the *Free Press* last winter. Due credit was given for it, and it started a train of thought which it may not be best to shake off. If an editorial in a country newspaper gets itself read all over the world, in that way, is it not a pretty good plan to be careful what it contains? While its publication away off there makes us just the least bit proud, it shall make us more careful that nothing shall go into our columns that shall harm even the least of the little ones."

### Fishing Bird.

A large fishing bird, of a strange species, was killed near Vincennes the other day. It measured sixty-two inches from tip to tip of wings, and fifty-two inches from toes to point of bill. Its head was ornamented with a fine plumage of variegated colors, green predominating, and its body white.

CLAUDE THORNTON.

### The Titmouse.

The titmouse deposits from ten to fifteen eggs before incubation begins, and a family of fifteen little titmouses requires considerable space to be comfortable. The eggs are small and nearly white, but bear a few delicate spots.—*Insect World*.

### A Petrified Skeleton of a Whale.

The petrified skeleton of a whale, over thirty feet long, has been discovered by an officer of the coast survey on a range of mountains in Monterey county, Cal., over 3,300 feet above the sea level.

### The Common Heron.

(*Ardea cinerea*.)

This bird, which was held in great favor in olden times as a fit subject for the pastime of hawking, is now only to be met with in comparatively small numbers, mostly in the fen or marsh counties of England, and as a general rule on private estates where they are never disturbed, being valued for the picturesque appearance they give to the landscape. A few centuries ago a heavy fine or term of imprisonment would have been imposed on anyone venturing to molest a heron, while the plundering of a heron's nest subjected the offender to imprisonment for a year.

The food of this species consists of fish, frogs, etc., and the bird will remain standing motionless in the water, for hours, keeping a keen outlook for anything eatable that may happen to pass in his direction. Eels appear to be considered a great delicacy, but occasionally one is selected which is too large to be comfortably tucked away, and not long ago I read in a scientific paper of a duel between a heron and a large eel which terminated fatally for the former, the eel twisting itself around the bird's neck so firmly as to strangle it.

In the adult birds the crown of the head is white, the neck gray, and the rest of the plumage is ash color, varied with black and white. The crest consists of three long feathers and is of a blackish gray, the beak, straw color and the feet black. The length is forty-two inches and the breadth seventy-five. The young may be easily recognized by the absence of the crest.

During the winter the heron lives solitary, but in the months of March, they congregate together and form a colony, sometimes numbering eighty or one hundred. Shortly afterwards they commence nesting; the same clump of trees being used year after year, and the old nests being added to until they become so large that they are blown down by

the winter storms. The trees selected are generally of considerable size, the oak and fir seeming to be the favorites. The nests are huge piles of sticks lined with wool or some soft material and the eggs, four or five in number, are of a pale bluish green color, quite devoid of markings.

I pass on to another member of the same family but far less familiar and widely distributed. viz:

THE BITTERN.

(*Botaurus stellatus*.)

A very fine specimen of this beautiful bird having recently come into my possession, I take the opportunity of giving a description of it.

Unfortunately, this species, in common with many others formerly abundant, is rapidly disappearing, and in England, at least, has become almost extinct, owing to the rapid advance of agriculture and the drainage of the marshes which were until recent times its habitation.

The bittern may be easily recognized as belonging to the heron family by its general appearance, but in color it differs considerably from any other species.

The plumage is of a rich yellowish brown, streaked and spotted with darker shades of brown. The crown of the head is black, the legs and feet are of a light green. The throat and breast are ornamented with a sort of ruff or crest of light yellow. The sexes only differ in size. The bird measures about twenty-eight inches long and forty-eight broad.

During the breeding season the bittern utters a loud bellowing sound closely resembling that of a bull and from this circumstance the generic name is probably derived.

The nest, which is composed of reeds and the stems of aquatic plants is placed on the ground close to the water side and in it are laid from three to five eggs of a uniform olive brown color.

L. HAYTER,  
London, Eng.

## Changing Habits in the Nesting of Birds.

It has been said that birds as well as men are changing their habits, and I found this to be quite true, especially in their nesting habits, during my observations this summer. I will give a few examples.

The white breasted nuthatch (*Sitta carolinensis*) is a bird supposed to delight in the deep and solitary woods, but I found a nest early in May, in a one-storied house in town, which was occupied by a large family.

Again, one morning when the hired men were through milking, they put a large tin can on a fence post, and a pair of blue birds (*Sialia sialis*) had their nest built in the can and in four days had a complete set of eggs.

The chimney swift (*Chaetura pelagica*) is usually supposed to nest in chimneys, but I have found three nests which disagree with this supposition.

On May 28 I found one of their nests in our barn, and I took it, and about three weeks later I found another, and in the same place.

While collecting, June 21, I came to an old log house, and for curiosity's sake crawled into it, and there I found a chimney swift's nest, with five eggs, and also a pewee's nest, with two young birds and one fresh egg in it.

On one of our barns about one hundred pair of cliff swallows have their nests every year, but in the last few years these nests were taken possession of by martins, bluebirds and English sparrows.

L. T. MEYER,  
Cedar Lake, Ind.

## The Colorado Bug.

Prof. Webster, of Purdue, sympathizes with us in our troubles with the potato bugs, and asks why we do not try slug shot. The pests have eaten up every potato vine and every chance potato they

could find outside the ground, and have dug into the ground and eaten holes into all they could reach there, have destroyed our melon shrubs entirely and eaten up a fine Mikado tomato vine, tomatoes and all, and are doing their worst to make away with our Acmes. We tried London purple, pyrethrum, and Paris green on them while on potato vines and the melon shrub, and killed and drove them away temporarily, but in a few hours the vines would be covered thicker than ever. We dare not apply poison to the tomatoes, and would not feel safe in using them after sprinkling with slug shot, so we give up the battle. The enemy is too much for us.—Indiana Farmer.

We would suggest that the editors of *Indiana Farmer* might rid themselves of the bugs by catching them individually and administering a dose of arsenic.

## A Naturalist in Embryo.

Johnny Perrine is a little fellow not quite 13 years old, yet he manifests a great liking for bugs, beetles and butterflies. During the summer he was visiting friends in Ohio, and while there he made a fine large collection, principally of Lepidoptera (*scale wing, butterflies*), though he had several fine coleoptera (*sheath wing, beetles*.) and among the neuroptera (*nerve wings, dragon flies, etc.*) we were particularly attracted toward a monster *Corydalis cornuta*, commonly known as horned cordalis. This is truly a monster. The largest we ever saw, being some 4 inches long. Johnny certainly has displayed great energy, perseverance and taste for one so young, as he has a splendid collection, and they are all nicely mounted, neatly arranged and correctly labeled, in glass topped pasteboard boxes. Johnny took the first premium on his specimens at the Lebanon, O., fair over several other quite extensive collections.

# The Hoosier Naturalist,

**Published Monthly, at 60 cents a year.**

**To Foreign Countries, 75 cents a year.**

**R. B. TROUSLOT,  
EDITOR AND PUBLISHER.**

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**VALPARAISO, IND., SEPTEMBER, 1886.**

If you have a good business, advertise and keep it. If not, advertise and get it.

We ask the indulgence of our readers for the tardy appearance of the NATURALIST.

A greater portion of the month has been spent in printing our "guide." We hope to have them completed and fully 5,000 mailed by this time next month.

Rip Van Winkle was foolish to go out and sleep on a damp mountain for twenty years. He might just as well have clerked in a store that did not advertise.

We regret to learn that the Southern Geologist has suspended. It is strange that in so large a country as these United States, not enough people could be found to take fifty cents worth of interest in so worthy a paper. Such, however, we believe to be the case, yet there surely is a growing interest for a similar class of literature and we shall hail with delight a reappearance of the Southern Geologist.

The Garner and Science Recorder's Journal, Published by W. E. Bowers, 25 Wansley St., London, S. E. England, and Edited by A. Ramey, F. G. S., has appeared on our table several times of late, and from the friendly reception given to our NATURALIST, we trust we may be favored regularly.

The Garner is especially devoted to the interests of the English Natural History Societies. Its language is simple, its articles interesting and its appearance neat.

The subscription price in England is 2s. 6d. per year, with 2½d for a sample number; presume there is a slight increase to foreign subscribers.

Dear reader, we would be pleased to have you make an effort in our behalf. Could you not secure just one subscriber for us? You surely are acquainted with some one person, interested in birds or animals enough to pay you 60 cents for a year's subscription to the NATURALIST. Show them the paper and see if you cannot induce them to subscribe. If you can and will do this for the love of the cause we shall appreciate it of course, or we will, if you desire, allow you twenty cents for your trouble. Make an effort, at least, and help us to increase our subscription list.

J. W. Preston, of Baxter, O., recently sent us quite an array of shells. There was a hooked scorpion from the East Indies, an orange scorpion from China, a white, a black, and a rose murex also from the East Indies; a fine helmet from the Bahamas, together with several other equally as fine shells from other sections of the world. When they were ordered, we had no idea they would be so large and fine. It has never been our good fortune to receive such a bargain as Mr. Preston gave us. We have, heretofore, paid as much as 75 cents for a black murex smaller by half than the one Mr. Preston sent us for only 25 cents. We can heartily recommend Mr. Preston and his shells to the readers of the NATURALIST.

For more than a year we have attended strictly to business, not allowing ourselves a breath of country air. And the few hours recreation we wish to speak of are due solely to our young friend, Fermier. George is a navel cadet at Annapolis, and availing himself of a furlough of thirty days, came up from his home in central Indiana and made us a short visit.

It was high noon when we left the house, the sun shone brightly, and a cool bracing breeze from the northwest lent vigor to our steps and buoyancy to our thoughts.

We are already in the country, we have ascended the steep banks just beyond the N. Y. C. & St. L. R. R., and stop for a moments rest. Looking back across the meadows, just beyond the P., F. W. & C. R. R. on another hill, are the Normal school buildings, yet we can look down on them and almost count the shingles, the air is so clear.

We are rested now, and turning our backs to the city proceed toward the woods and Sager's lake.

Away off to the left the noisy, golden-winged woodpeckers are holding a carnival, no doubt discussing the oncoming winter and the advisability of a trip to the land where 'tis joyous spring through all the year."

The plaintive notes of the sombre-colored wood pewee are heard on every side, which contrasts strangely with the discordant tones of its larger and brighter colored neighbor, the blue jay.

We stopped for a few moments to watch a couple of chipping sparrows, and when we moved on, the breaking brush under our feet startled a ruffled grouse from its secluded nest on an old log.

Quietly approaching the lake we observed several pied-billed grebs, who, frightened at our sudden appearance, dove vigorously, re-appearing several rods away, only to dive again and again, each time increasing the distance between us. Along the shore several "tip-

ups" started at our nearness, stand irresolute, with that peculiar motion of the body, which gave rise to their name. The bank and cliff swallows are gracefully skimming the heavens in quest of their never-failing insect food, and over by the bridge, we see, for the first time in this neighborhood, a large turkey buzzard. A wanderer, evidently attracted by the stench arising from a slaughter house not far away, he soars gracefully, round and round, scarcely moving a wing, then silently settles toward the earth, and undoubtedly a good dinner (?).

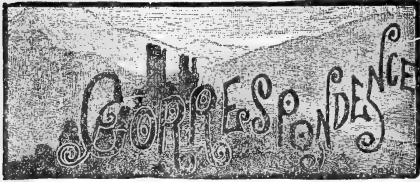
In the neighborhood of the Kankakee river, some twenty miles south, we have frequently seen large numbers of these birds, but this one is our first for this place.

Golden rod covered the hills in great clusters, and attracted a group of noisy students, like ourselves, no doubt, out for an airing; but not enjoying their boisterousness, we appropriate a boat that had broken its moorings at the head of the lake, and with the aid of a strong wind floated down to accommodate (?) us. Crossing the lake, we climbed a steep bank and entered a grove of stately oaks. Here the white-bellied nuthatch and downy woodpecker were abundant, quite tame as well, permitting us to approach within a few feet before flying to another tree.

Here, too, we observed a pair of blackburnian warblers. Our presence seemed to fill them with consternation, for with out-spread tail and extended wings they hopped and skipped from branch to branch, until out of sight.

Regretting the short afternoon we turn our steps homeward, in time to receive and answer the mail just coming in.

If you need insect pins, or cork, or bird's eyes, remember that the NATURALIST has a fine line at prevailing prices and would be glad to accommodate you. Would, in fact, consider it a favor to receive your orders.



## AND TAXIDERMISTRY.

### White Flying Squirrel.

Under date of September 9, Dickey & Allen, taxidermists, at Acworth, N. H., reported mounting a white flying squirrel. They surely have in their possession a treasure.

### Artificial Glass Eyes.

If you are working at taxidermy we would be pleased to supply you with such eyes as you may wish. We believe, considering the quality, that our prices are more reasonable, even, than those quoted by other dealers. Send for circulars.

### Black Woodchuck.

Editor HOOSIER NATURALIST:

DEAR SIR:—Enclosed you will find 60 cents for which please send me the HOOSIER NATURALIST for one year. Read the sample copy and was very much pleased with it. I have just mounted a black woodchuck; they are a rare specimen here and I guess everywhere. I would like to ask Prof. J. G. Jones through your paper how to preserve large birds' feet, like eagles, cranes or herons. Yours truly, A. KIBBE.  
Mayville, Chaux Co., N. Y.

### Remove Tendons from the Legs of Large Birds.

Editor HOOSIER NATURALIST:

DEAR SIR:—Enclosed find 60 cents for which please send us the HOOSIER NATURALIST for one year, beginning with the August number.

Am glad you reprinted Mr. W. Hornaday's process of mammal skinning; now won't you please supplement and complete this expert advice by republishing the *bird* skinning formula by the same author.

Skins prepared by this method are much easier for the taxidermist to mount, as he advises the removal of the tendons in all large and long-legged birds and hawks.

This makes leg wiring very much easier in dried skins as well as green ones. We found it a hard job to wire a spoonbill recently, as the tendons were left in leg.

Yours very truly,

DICKEY & ALLEN.

### What about the Chemistry Supplement?

Editor HOOSIER NATURALIST:

DEAR SIR:—Will you please explain to me in the columns of the HOOSIER NATURALIST why I have never received the "Chemistry Supplement" since "Tidings from Nature" was transferred to your hands, I having always received it with my copy of the above paper, when Mr. Downs was in charge? Also please forward the June '86 No. of "H. N.," which I have not yet received, and oblige.

Yours, F. H. FLOY,  
Elizabeth, N. J.

Previous to receiving the above we had written Mr. Downs, which brought forth the following response:

Editor HOOSIER NATURALIST:

DEAR SIR:—I should have written you before in regard to "Chemistry," but it has always slipped my mind when I could. The facts of the case are: About the last of April I was taken sick, and before I was strong enough I went into the work too fast, the consequence—again down, and have been unable to do anything all summer. Mr. Beekman has taken back his manuscript, and I do not know what he is to do with it. I am very sorry the thing has happened this way.

Yours, etc., H. M. Downs,  
Rutland, Vt.

We have fulfilled our part of the contract so far as the NATURALIST is concerned. Mr. Downs' negligence to fulfill his places it beyond our ability to do more. We regret this, of course, but as the circumstances are, we cannot do otherwise.

### Albinism in Birds.

"Accurate observation is of more value than the study of all the books that have ever been written about birds."—R. Bowdler Sharpe, of the *British Mus.*

Having paid more than ordinary attention to albinism and collected systematic notes on the subject, I have been induced to think that a few words on this curious phenomenon would not be thought uninteresting to the readers of the HOOSIER NATURALIST.

The albino peculiarity is chiefly observable amongst birds. Letters appear not unfrequently in the scientific magazines recording the appearance of albinos amongst their various species. We can record numerous cases of albinism in house sparrows, [*Passer domesticus*] and common partridges (*Perdix cinerea*). White varieties of chaffinches (*Fringilla coelebs*) and pheasants (*Phasianus colchicus*) are also occasionally noticed. I have even seen a female black-bird having its head and neck pure white and been lucky enough to find a male quail (*Coturnis dactylisonans*) which had evident traces of albinism.

Albinos occur with a greater frequency amongst birds than amongst mammals. Mr. F. W. Halfpenny, (*The Naturalist's World*, January, 1885,) attributes this difference to the fact that our wild quadrupeds are not nearly so numerous as our wild birds, and he believes albinos occur in the same ratio amongst all warm blooded animals. This explanation is quite in accordance with my own idea on the subject.

Some naturalists divide albinos into three classes. (*The Field*, 1885,) 1st. Those which are always white; 2d. those which habitually become white in winter; 3d. those which are abnormally pied and albino. This division is to my mind, incorrect. The birds which are normally white cannot be called albinos, for they form distinct varieties. It is the same thing with those which periodically change color according to the seasons, such as the ptarmigan, which in winter becomes white, whilst in summer it is brown. I understand albinism to mean an abnormal character, a divergence from a usual type, proceeding from an absence of the coloring matter in the feathers or the skin.

Another general characteristic of albinism is to be found in the eyes which are mostly reddish colored; but this peculiarity is not necessarily associated with all cases of albinism.

Partial albinism is of very frequent oc-

currence, as, for example, in the white, robin spoken for by Mr. Chas. L. Phillips, [the HOOSIER NATURALIST, February, 1886, page 103.] which had the red breast, but all the other parts white, tinged with yellow above. It is interesting to notice that partial albinos rarely possess pinky or reddish coloured eyes.

Albinism is due to a constitutional change in the bird; it is caused by defective organs. The principal source of the coloring of birds is the deposition from the blood of distinct pigments. These pigments consist of granules enclosed in cells, which, increasing or diminishing in number and in size in proportion to the richness and quality of the blood, produce these periodical changes of colors frequently observable amongst birds. Sometimes these cells fade and disappear completely; in this case the bird becomes quite white. I perfectly agree with Mr. W. P. Ellis, [*The Naturalist's World*, March, 1885.] in thinking that albinism is generally accounted for by the absence of pigment before the animal is hatched, or rather want of pigment in the parent. I deem it the best explanation of the phenomenon.

As to the reason of the pathological change in the cells of the feathers, I can only offer suggestions. I am inclined to think that this change is frequently due to the cold weather. Most of the readers of the HOOSIER NATURALIST are acquainted with the fact that large numbers of white varieties of birds are noticed during those winters which have been distinguished for heavy falls of snow. This, in my opinion, is one of the important evidences of the great influence of cold upon the coloring of birds.

Numerous other operating factors have to be allowed for in the matter, such as the nature of food and heredity. In many cases of albinism there is a tendency to transmission; but the albino peculiarity is not always hereditary. I have observed, in fact, that albino birds not infrequently produce young ones of the normal color. Sometimes, even, it happens that after moulting, albinos obtain a normal plumage. This tends to show that the bird infested with albinism is not physically inferior to its brethren.

T. M. Emile Bonnet,  
Montpellier, France.

### True Snake Story.

Editor HOOSIER NATURALIST:

DEAR SIR:—I enclose a little clipping from the Defiance County *Express*, one of our local papers. The story is true, as it occurred but a few miles from this place. I thought, perhaps, it would be of some interest to you if it had not already come to your notice.

G. W. HOOTMAN,  
Defiance, Ohio.

The best snake story of the season, the truth of which can be verified by hundreds of eye-witnesses, comes to us from Auburn Junction, a few miles west of here. In the right hand back corner under the writing desk in the office of the Swineford House, the only hotel in the place, a "we small" cunning spider has built for his guests his little parlor. By some chance unknown, a small snake about seven inches long, a specie of the garter, made its way into the room and seems to have stopped for sweet repose under that writing desk. But ere he had gone to sleep his cunning little neighbor above securely wound his subtle web about the tail of his would-be captor, extending the miniature ropes in many different directions, after which this little master-mechanic began tightening them and drew the snake's tail from off the floor. The little fellow was not long in raising his prey so that he was completely suspended in air, his head being at least an inch from the floor. The snake would now raise his head several inches and make a desperate effort to release himself, but to no avail. The spider which was ever watchful would run the web, fasten another rope further down on the body of the snake, bite him about the tail, return, and in the struggles of his victim would draw the cords tighter. It has been about a week since this strange phenomena was discovered, and many hundreds of people, including professors and naturalists, have through curiosity or study watched this ingenious little creature

raising his great load. At last accounts the snake appeared as lively as ever, the spider had fastened his web firmly about fully half of the snake's body, and raised him at least a foot and a half from the floor. Without the aid of mechanical principles the spider, whose weight is many hundred times less than that of the snake, would utterly fail in his superhuman efforts—superhuman because with all our knowledge of the principles in the use of levers and pulleys the weight that we can raise is much less in proportion than that raised by this little spider. Nature furnishes unbounded fields for thought and research.

### Birds Not to be the Style.

Now that the fall fashions are about being introduced, let the ladies of the United States show their good taste and womanly instincts by refusing to buy hats and bonnets upon which the plumage of birds is in any way used for trimming or decoration. Other forms of ornamentation quite as pretty and more appropriate can be devised; and by taking a firm stand in the way indicated the fair sex can do an incalculable amount of good in the preservation of the singing and insectivorous birds of the country.—*Sandwich Free Press*.

### The Black Swan.

This bird is a native of Australia, where it was discovered in 1698. The nest of the swan consists of a large mass of reeds, rushes and grasses, set upon a bank close to the water in some sheltered spot. There are generally six or seven eggs, large, and of a dull greenish white color. The black swan is not so elegant in its movements as the white one, although a more handsome bird. The length of the swan varies from three to five feet; and when standing it will stretch its neck to the height of five or six feet.

NELLIE F.



## Clippings.

—Brazil Horner was hunting near Wheeler yesterday, and brought home a nice large goose and some small game. He says geese and ducks are coming in quite plentiful now. —*Valparaiso Daily Vidette*.

—Charlie McFadden and Yet Duval were down at Liverpool fishing two days this week and returned with about one hundred pounds of black bass which they are selling on the street today. —*Valparaiso Daily Vidette*.

Schulze—"And how do you like the parrot I sent you?" Mullet—"It was a bit tough." S—"What, have you eaten it then? Why, the creature could talk!" M—"Well, why didn't it say so, then?" —*From the German*.

A wag brought a horse to a stop by the word "whoa," and said to the driver, "that's a fine horse you have there." "Yes," answered the young man, "but he has one fault, he was formerly owned by a butcher, and always stops when he hears a calf bleat." —*Prairie Farmer*.

Small boy dialogue actually heard at the circus: "Say, Patsy, which would you rather, that the hipitypottermouse was a runnin' after you or the ryenowserboss?" "By golly, Mike, I'd rather it was the kangaroo, 'cause I could get inside and ride." —*Boston Post*.

There seems to be a conspiracy between two hens, a horse, and the dog of a South Windham farmer to deprive him of his rights in eggs. One of the hens daily lays an egg in the dog house and the dog daily eats it. The other hen lays her egg in the horse's manger and he eats it. Indeed, so fond is the steed of fresh eggs that he sometimes lifts the hen off the nest to see if the egg has been laid. —*Hartford Post*.

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 The White Owl.

The first white owl to my knowledge in north Ga., was shot and killed, a few days since by Mr. B. M. Harlan, of Calhoun, Ga., who was out quite early one morning, after his favorite sport of squirrel shooting, on the Oochcaloga creek, (a stream which comes rippling, and sparkling, through one of the most beautiful and fertile valleys in north Ga.) as Mr.

Harlon was stealing noiselessly along through the wood, he saw a great white bird sail just ahead of him and light on a projecting limb of an old dead oak. He at once fired, and instantly killed the beautiful bird, and was surprised to find it to be an owl. It measured about two feet eight inches from tip to tip. A taxidermist now has the owl and says 'tis the most beautiful of my collection.

Here of late, it seems that a great many birds are migrating to our country. For instance, the English sparrow, three years ago, was entirely unknown in our town and vicinity, but today these little birds by far outnumber all others. While we account for the rapid increase, we too account for the pluck and disposition to fight and drive away all other birds. An instance will show: Two years ago our town was full of pigeons, martins and blue birds, but alas! they have all flown, save a few of the latter. The English sparrow builds like the blue bird or martin, in cracks and holes around old buildings. They have taken the martins' special home and will not let him even show his head. In a single old building last summer, I could have counted at least fifty nests of the English sparrow. I was amused the other day at an instance which occurred at a hotel. I was sitting on one of the verandas, when a man came from one of the rooms with a caged mocking-bird; no sooner had he hung up the cage and re-entered his room than a swarm of these sparrows covered the cage and tried every way to get the poor single bird. It is only early morning and late evening that you hear the English sparrow sing, or that is, that you hear him chattering, for his voice is very unmusical, though cheerful. Many despise these little birds and wish they were gone, but I love them, for they are first about my window at early morning, to warn me of the duties of the day.

J. M. HARKINS,  
Calhoun, Ga.

**Books, etc., Received.**

Catalogue of Lichens collected in Florida in 1885 by W. W. Calkins, reprint from Journal of Mycology, October, 1886.

Science Series: The Palm and its Varieties; The Eye and Light; Net and Box, or, Insect Collecting. H. M. Downs, Rutland, Vt. Price 5 cents each.

Important Disclosures Connected with "The Coal Problem" examined in the light of "The Annual Theory." By Isaac N. Vail, Barnesville, Ohio. Price 30 cents. Prof. Vail writes very plainly and we cheerfully commend "The Coal Problem" to all geologically inclined.

Sexual Physiology: A Scientific and Popular Exposition of the Fundamental problems in Sociology. By R. T. Trall, M.D. Price \$2.00, for sale by Prof Edward Jones, Lindenwood, Ogle Co, Ill. (See ad. elsewhere.) This is a work of more than 300 pages, neatly bound in cloth and, as the author states, is calculated to instruct the masses of the people on those subjects which have hitherto been to them as a sealed book.

The Practical Debater, Henry. An Outline of Instruction in the Law and Practice of Parliamentary Assemblies; A Manual for all kinds of business meetings, teachers institutes etc., etc. Neatly bound in cloth. 75 cts. Presented with the compliments of G. M. Webster, Publisher, Terre Haute, Ind.

Duties and Dangers in Love, Courtship and Marriage, by Edward P. Jones. Published by M. S. Weber, Publisher, Farmersville, Pa., at 15 cts.

**An Egg With a Handle.**

An energetic Canadian hen recently produced an egg attached to which was a tail about an inch in length, resembling a snake. The covering of the tail was shell, but somewhat stronger than that of the egg itself.—*Ex.*

A number of years ago we had a similar specimen in our collection. It met with a serious accident however, as it fell from the hands of an awkward, though well-meaning old gentleman, to the floor, and was broken beyond redemption.—*Ed.]*

**The Imported Cabbage Butterfly.**

The undersigned would be thankful to receive from those who read this, an answer to the following questions:—

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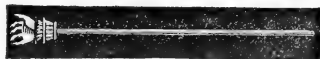
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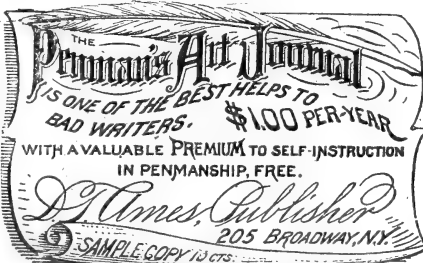
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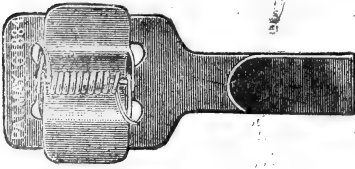


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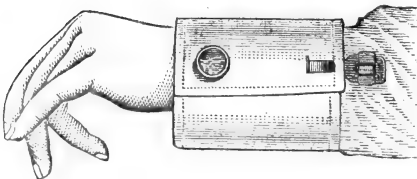
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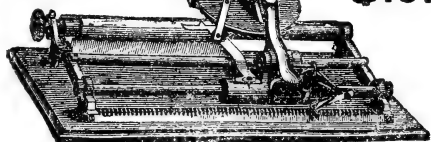
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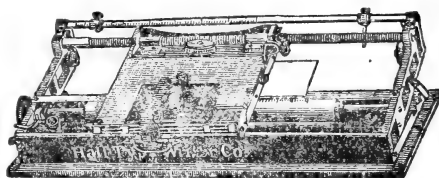
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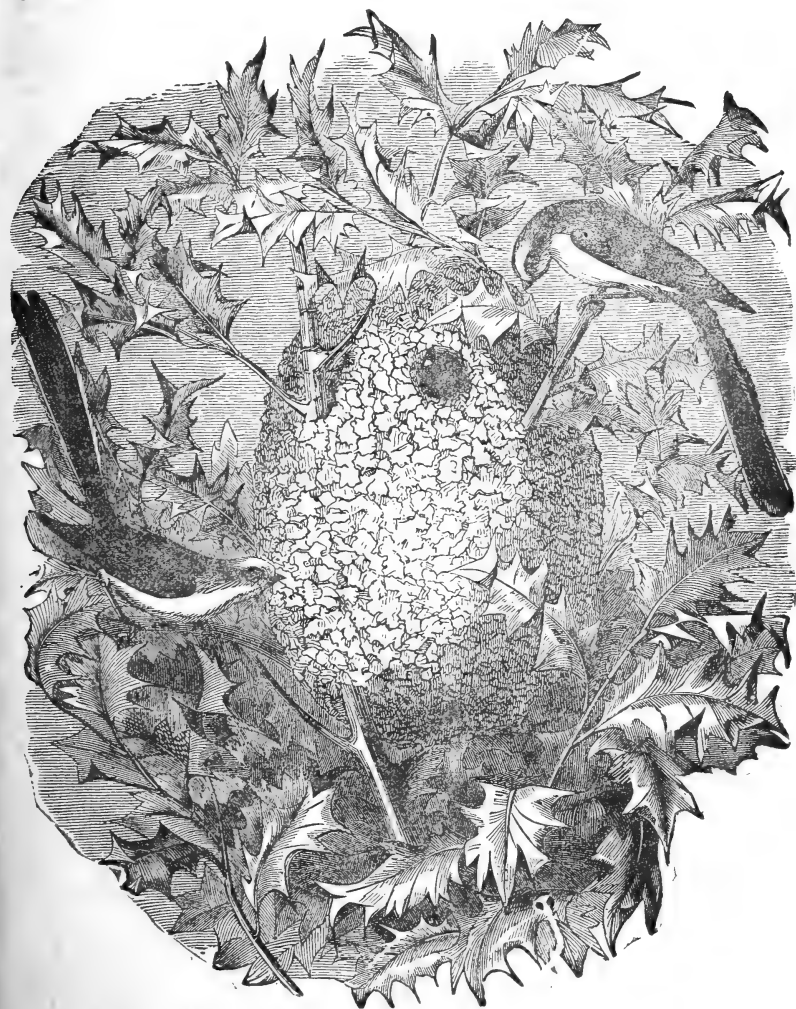
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# THE HOOSIER NATURALIST.

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### Magpies.

The subject of our illustration is the European magpie. When building they generally choose the top of a high tree, for the magpie is a sly, cunning bird. The form and structure of their nest is superior to that of any other bird, for comfort and protection from the inclement weather and enemies. It is built of thorny sticks, interwoven and plastered inside with earth, and lined with dry grass and other vegetable fibres. The magpie is related to a large family of intelligent birds, widely diffused over the world; the crow, raven, rook, jackdaw, jay and nut-cracker, are the best known. The magpie is more common in Europe than America. It is not so well known here as its relative, the crow, and is not all black like the crow, but is black, white and blue. With its long tail the total length of the bird is about fifteen or twenty inches. It is easily tamed, and learns to articulate a few words. It is fond of bright and glittering articles, and will carry them off. The house has but one door, in the side, and no window; but they have built it for themselves, just as they want it for their use and protection, and comfort of their future family.

### Our Local Water Birds.

Any person casting a glance over the tranquil surface of one of our average California lakes could never but notice the presence of "water fowl," conspicuous by their large numbers. But beyond taking cognizance of their immense numbers the casual observer will go no farther. But let some of us, "Lovers of Ornithology," perchance, happen upon one of these lakes and we are at once struck both with their number and great variety.

Let us do so and cautiously approaching the banks conceal ourselves in some sheltering reeds where, unbeknown to

the objects of our observation, we can while away a few leisure hours in the study of their actions and peculiarities. Yonder, a few hundred feet from us, is a sunny bank literally lined with ducks. Conspicuous in this group we notice four or five old drake mallards, "greenheads," who seem to be on duty as sentinels while the rest of the ducks are contentedly reposing with their heads under their wings all ignorant of the presence of "ye intruders." What a beautiful illustration of contentment they are, as they seem to put all confidence in the alertness of their male protectors. The next to attract our gaze is a pretty little group of "cinnamon teal" cosily crowded together apparently either for warmth or protection. But what a mistaken idea! Little do they realize that it is this self-same habit which renders them a desirable and easy prey to the ruthless "Pot Hunters" who, taking advantage of this habit of sociability, create havoc amongst their numbers with the death-dealing fowling piece. Next we notice a dozen or more "shovelers" busily engaged in the shallow water in the pursuing of small mollusks, their favorite food. What an awkward spectacle they present with their huge bills, which appear out of all proportion.

But what kind of ducks are those we now see on dry land and busily cropping at the tender young grass and clover? White heads and white stripe across the wings soon inform us that they are nothing more nor less than a small flock of "American baldpates," or "widgeons" engaged in their customary grazing habit. But right here we are startled by a sudden whistling of wings directly over our heads. On instantly looking up we behold a flock of fifteen or twenty ducks, which, after circling a little, alight on the open lake within sixty yards of where we lie concealed, and at once commences a lively time of splashing, fluttering of wings, and fresh water baths. Pardon us, kind reader, if we are allowed to ex-

press our envy of them. Prominent among the new comers are a half dozen or so majestic old fellows of a bluish grey color, long brown necks, and rendered still more conspicuous by two or three long pin feathers, which abruptly project from six to eight inches behind them. You will at once recognize this beautiful specimen as the "pin tail." Hear that cute, almost inaudible "quack, quack," and you see a "green teal" in playful pursuit of a beautiful little spotted "buffle head." But see that sturdy old fellow with the light grey back and dark brownish neck and head. He seems to hold himself aloof from the other ducks undoubtedly regarding them as his inferiors. Well, he holds himself in his true position as is ably attested by numbers of epicures who have had the good fortune to dine off the flesh of the celebrated "canvasback." A few feet apart from this stately old canvasback sits a very near cousin of his, an old "redhead" drake, whose distinguishing feature from the above lies principally in his smaller size and brighter red head. He, too, has some of his cousin's royal blood in his veins for he moves around with the same disdainful air. But there is a loving pair of larger brown ducks with an inclination to a mottled greyish color, a few white feathers on the wings and a slender black bill. It is a little difficult to decide whether they are a pair of "godwalls" or "dusky ducks."

But see that homely little brown ball of a duck that comes sailing noiselessly along between us and the flock we have just been scrutinizing. He appears to be at least half submerged in the water as he swims along. His stiff, spiky tail, and short, thick bill, together with his color and peculiarly rotund appearance, indicate at once that he is a fair specimen of the "ruddy duck." In watching this little fellow as he swims along, your attention is directed for the first time to a beautifully marked, rather undersized specimen of a duck. At first glance you correctly pronounce him to be a lonely little "wood

duck," who seems to be far removed from any of his own family or associates.\* What is that little brown bird with a snakelike neck and pointed bill? Oh! there he goes down out of sight. "Good bye." We wait his re-appearance above water for a seemingly incredible time. Yonder he is, just emerging from the water, a hundred feet from where he first disappeared. There he goes again, just as easy. This is no doubt an ideal specimen of the "thick billed grebe," an account of whose prowess in diving has earned for himself the not over æsthetic title of "devil diver" among the boys of this locality.

Oh, but what a racket! On looking in the direction from whence it comes you see a whole regiment of coots just emerging from a dense bed of reeds and tules. The coots are apparently ignorant of our presence and at once begin a grand spluttering and romping and occasionally indulge in a little personal warfare. They remind us of a lot of boys just dismissed from school and having a grand romp before dispersing for home. What a striking contrast is the above spectacle to that exhibited by the actions of that pair of sullen old "blue cranes" we see standing with a gloomy meditative air, a few hundred yards down the lake.

"Honk, Honk!" right overhead, "there they are," a whole flock of geese, some white, some black, all joined together and heading for their favorite feeding ground, some large barley field, not far distant. "Flopp, flopp, splash," before we were hardly aware of their presence a fine brace of "loons," have alighted within a few yards of us and remain settled a moment. Oh! they saw us as we made a slight movement to get a better view of them. They are gone—wary birds they are. We intently watch them as they quickly disappear in the distance, when—"bang, bang!" For a moment there is a tumultuous uproar, a whistling of wings, a scampering of alarmed coots into the sheltering reeds.

\*They are but rarely seen in this locality.

In a few moments everything is again quiet, the ducks have all gone far down the lake, the coots are all invisible amongst the tules. The little grebe has made his final and best dive and probably emerges among the tules, but we do not see him. The lazy blue cranes have left. On looking up we see the cause of this sudden transformation.

A heartless sportsman has stealthily approached our little band of cinnamon teal and poured the contents of his deadly fowling piece into their midst. As a result he has bagged five or six of the pretty "red ducks." Thus is our study brought to an abrupt close and we have a few private thoughts on "Cruel, remorseless man," who would so willingly intrude upon and destroy some of the most beautiful creatures of nature.

A. M. SHIELDS.

Los Angeles, Cal.

### A Hawk's Nest.

In the spring of '85, on April nineteenth, I was collecting in northern Indiana. It was a wild country, for not many years before the roaring prairie fires had swept over it, but lately a great number of trees had sprung up making the land worthless for anything but the nesting of the Mourning Dove (*Zenaidura carolinensis*) of which I found numerous old nests. At the edge of this young growth was the old forest and there I went for crows', owls' and hawks' nests. After wandering all morning without finding anything, I had partly concluded to turn back, but something kept saying: "Keep on," and so I went until I came to an oak tree considerably larger than the others, with a great bunch of sticks in the top of it. While looking at this, a red-tail hawk (*Buteo borealis*) flew off from the nest and my gratification knew no bounds, for it was

the first hawk's nest I had ever found. After much difficulty, I climbed to the nest, which was about thirty-five feet from the ground, and found two eggs. The nest was very bulky and was composed principally of sticks, lined with grass. The eggs measured 2.x2.4 and were a bluish white, spotted and blotched with a reddish brown. They were partially incubated. While I was in the tree the male and female hawks sailed around me in circles, expressing their dissatisfaction by plaintive screams. Placing the eggs in my cap and that in my teeth I succeeded in reaching the ground safely. These eggs now comprise about the rarest of my collection and it is with delight that I remember that day.

L. T. MEYER.

Cedar Lake, Ind.

### A Bird Story.

A young woman who lives in a boarding house in Lewistown has so far this summer made an especial pet of one poor little English sparrow, that has built a nest near the house. At first she fed it with crumbs in the door yard, and it came regularly each day for its food. By degrees it became so tame that it would eat from her hand, and finally became so attached to her that it followed her when she went to a neighbor's to call and would chirp knowingly to her. The young lady went away on a visit the other day to White Rock, in Gorham, Cumberland county. The day following her arrival she was startled by the familiar chirp of an English sparrow and to see her old pet circling about her for its daily crumbs. Each day, the young lady asserts, the bird reappeared regularly for his food, and on her return to Lewistown, made his appearance at the door and comes now each day for food, as before her departure.—*Lewistown (Me.) Journal*.

### My First Antelope.

David W. Judd writes from the Far West to the *American Agriculturist* for November.

An incident to-day recalls my first antelope. Equipped with Sharp Carbines and Winchesters, supplied with provisions for three weeks, we pushed southward from Laramie, Wyoming Territory—Auditor Weston, of Nebraska, his son Ralph, Tim Foley, the well-known frontiersman, a trusty guide, and the writer.

It was a bright crisp morning and in that atmosphere Sheep Mountain seemed but five miles away, though the distance proved to be more than twenty. Before noon the antelope began to appear in the distance, and, as we approached the mountain, occasional small droves trotted leisurely by and whirled with eager curiosity to turn and gaze at us. Then after them we would go as fast as our horses could carry us, emptying chamber after chamber of cartridges, but with no seeming effect. Army officers stationed near here and elsewhere on the frontier have frequently run them down with greyhounds. It is reported of one of General Stanley's dogs that he brought to bay and "downed" twenty-four antelopes on a single expedition. We loaded and unloaded our rifles all the afternoon without striking, as far as we could ascertain, a single antelope, though several jack rabbits and on occasional sage hen rewarded our constant fusillade. On the second day we were glad enough, after our long ride, to lay up for repairs at Pinkham's in North Park, Colorado. Here droves of antelope were seen in large numbers at a distance. Chafing under my constant failure to bring one down, I determined on resorting to the old ruse of "flagging" them. Possessed with inordinate curiosity, they can sometimes be drawn within shooting distance by raising one's handkerchief on the tip of the rifle or on a pole suspended above the long grass in which the hunter is concealed. At early daybreak I started off

alone, stealthily crawling through the grass toward a small drove in foot hills a mile or more away. After maneuvering in this manner for a full half hour, I got within less than six hundred yards of the game unperceived. I then attracted their attention, and the animals, after approaching me for some distance, came to a halt. I then took deliberate aim at what appeared to be a noble buck, and enjoyed the exhilarating satisfaction of seeing the animal stagger and fall. Imagine my chagrin and sorrow, however, when, upon mounting my broncho, and quickly riding to the stricken antelope, I found a doe bleeding to death with two fawns standing over her. Instead of trotting away at my approach, they remained by the dying doe and with their beautiful gazelle eyes bestowed such looks of piteous reproach as one could never forget. It was a sight which occasioned no little remorse, and though the succeeding days we were constantly surrounded by the antelope in close proximity, I could not bring myself to shoot at one of them again while we remained on the expedition, excepting one Morning when we were out of supplies. We subsequently killed our Rocky Mountain lion and other game, but the antelope, so far as I was concerned remained undisturbed.

### The Busy Crow.

In speaking about crows, let me say: We have a pet crow that was taken from the nest last spring, and if there is anything that escapes him, I don't know what it is, for we have to keep everything out of his sight. He will carry away knives, spoons, forks, screw-drivers, tape, or nails. One day, while preparing to rinse clothes he stole the blueing rag out of the tub, while our backs were turned, and we had a big chase before we got it again. We have a pup. His name is Gip. The crow's name is Jim. The crow and pup play together like two kittens. It makes no difference which name we call

they will both come. Mischievous Jim has the advantage of Gip, as he can fly up when he has anything in his mouth that he don't want Gip to have; so that breaks up their sport until he is ready to light down. Jim will go any place on the farm that Gip will. He can bark like Gip, or laugh like us, and make more different kinds of noise in one hour than any other bird I ever heard or saw. He will untie our aprons and steal every pin from our clothes and all the buttons that he can find, and if there is a coat or vest in his reach, he will rob every pocket of such things as knives, pencils, day books, or buttons, or if there should be a penny he is sure to get it, for we tried him on a silver dollar, and we had a good time getting it again. We succeeded by getting a ladder and going up on the roof of the house where he had dropped it. His style is to hide everything that he can carry, and when the boys go hunting with the gun he will fly from branch to branch and keep along with them as the pup does.—*Indiana Farmer.*

#### A Golden Eagle Killed.

In Hendricks county, Ind., Oct. 14, 1886, James Meadows, of Marion township, brought to town a gigantic and beautiful specimen of the American Golden Eagle [*Aquila chrysaetus*,] which he and his brother "surrounded" and shot that morning in Henry Thompson's woods, three miles west of Danville. Meadows first spied the great bird in a willow shrub, near the ground, in the act of devouring a good-sized pig that it had captured. A number of crows were hovering about, awakening the woods with their fretful outcries against the royal intruder upon their domain. The approach of Meadows startled the eagle, and it rose, bearing its prey with it, but dropped it, and alighted a short distance off, on a forest tree. Meadows then hastened to the house and brought his brother with him to the woods, each

bearing a gun. One of the men made a wide circuit around the tree where the eagle was perched, thus attracting his attention, while the other crept cautiously up and fired, bringing down the noble bird with a center shot straight through the heart.

Sell Hawkins, foreman of the *Republican* office, bought the eagle, and soon identified it as belonging to the *Aquila chrysaetus*, or golden eagle tribe, being one of the largest specimens ever found. It measured seven feet and one inch from tip to tip, thirty-six inches from beak to tail extremity, and weighed eleven pounds. It was in fine shape for preserving and mounting, and as Mr. Hawkins is a skillful taxidermist, he will in a few days have the finest "spread eagle" ever seen in the State. Fully a hundred people called at the *Republican* office Tuesday to see the golden crowned "king of birds."—*G. Dallas Lind.*

#### Blue Gray Gnatcatcher.

(*Poliophtila caerulescens*.)

The blue-gray gnatcatcher is one of the commonest of woodland birds, breeding in this country. They begin to build here long before the leaves appear on such trees as locust, walnut, butternut and oak, I have found slightly incubated eggs as early as May 9.

One set collected May 12, contained three eggs, white, with a greenish-tinge dotted with lilac, reddish-brown and some faint markings of slate, they measured .55x.46, and were slightly incubated.

The nest is very beautiful, composed of thistle down, down of the milk-weed, and other soft materials, and is sparingly lined with very fine grasses and hair. The outside is covered with small star and leaf shaped lichens.

I have found them placed from fifteen to forty feet from the ground, generally saddled on a horizontal branch, occasionally on a fork, or large branch.



## COW-BIRDS.

This season I collected sets of che-wink, cardinal grosbeak and blue bird, containing cow-bird's eggs, also saw a desperate fight between a pair of cardinals and three cow-birds. The cow-birds came out victorious and two eggs were laid. The cardinals deserted the nest immediately.

J. W. JACOBS,  
Waynesburg, Pa.



## A Georgia Coon Hunt.

"Now youens jist foller me an' we'll wake up them coons long 'fore day." These confidential words were uttered by a stalwart young farmer who had on the previous evening, promised us a genuine coon fight if we could "stand the racket" of the hills, rocks and logs over which, he assured us, we would have to climb.

We passed out of the gate and along a path to a corn field which lay at the foot of a high, rocky ridge, where the coons were wont to hold their midnight roasting-ear and pumpkin feasts. Here we paused to wait on the dogs.

It was past midnight, the moon had just reached its zenith and hung like a great disc of dull gold in a cloudless sky; the hot August air was heavy with the fragrance of ripening fruits and maturing grain, and the corn field, spotted here and there by patches of thin white vapor, lay wide and silent before us. This silence, however, was soon broken by the baying of the hounds. The young farmer leaned backward and gave a yell that seemed to

awaken the echoes from the very foundations of the eternal hills, which was answered by the doleful hoot of an owl far up the rocky ridge. We stood in breathless suspense for a few seconds,—"Thar she is—they hev treed!" exclaimed our farmer friend excitedly, and in a few seconds we were clambering and scrambling up the steep slope toward the summit of the hill from which the baying of the hounds seemed to proceed.

All breathless and panting we reached the tree around which the hounds were collected. Our friend assured us that this was an "out an' out coon dend." It was a giant chestnut-oak, perfectly straight, with wide spreading boughs well clothed in thick green leaves, standing squarely on the summit of the low mountain; as we walked around and peered curiously up into its dark and silent foliage, it indeed seemed a fit home for the wild denizens of the forest.

We, at the suggestion of our friend, all sat down around the tree to wait for daylight in order to cut it down. After some time the dogs seemed to go to sleep and everything grew perfectly still except when the flying squirrels squeaked and chattered in the trees about.

We grew tired of waiting for daylight and cut down the tree. It fell with a terrible crash and the dogs plunged into the top and there at once followed such a snarling, snapping and squalling as we had never before heard. We had the pleasure of carrying home one large old fellow and four young ones.

GEORGE TICKNOR WHITE.  
Calhoun, Ga.

## Assistance.

Carefully examine this issue of THE HOOSIER NATURALIST and if you consider it worthy of your support please mention the fact to your neighbors. Show them your copy and obtain their subscription for us. Put your shoulder to the wheel and help us make a grand success of our HOOSIER NATURALIST.

### Successful Domestication of the American Buffalo.

A gentleman is now successfully domesticating the American buffalo at Stony Mountain, Manitoba. Starting his herd in 1878 with four heifer calves and one bull, it now numbers sixty-one head; the greater number pure buffalo; the rest, half breeds. When we saw them in January, all were sleek and fat, and yet they were then living on the open prairie, and feeding on the prairie grasses covered by snow. At this time the snow was deep and the thermometer had, for long, registered twenty or more below zero. In January of the preceeding year, one of the cows had calved on the plain, and although at the time the thermometer registered thirty-eight below zero, neither cow or calf appeared to suffer in the least. When a blizzard comes on, the animals lie down together with their backs to the wind and allow the snow to drift over them, so that under the combined protection of their own wool and the snow, they are quite warm. Not one of this herd has ever exhibited the slightest symptoms of disease, although the only care they receive is occasional watching, to prevent them from straying away. Thus winter and summer they live and thrive on the bare prairie, with numbers undiminished by any of the ordinary cattle scourges, and with expenses for care reduced to a minimum.

Once a year the great fleece, weighing from ten to fourteen pounds, is shed, and its manufacture into thick warm cloth was at one time a regular industry at Winnipeg, until it was discontinued by the extirpation of the animals in the adjoining region. In its market value, the buffalo is not behind its smoother relative for even if the quality of the meat is inferior, the difference is more than made up by the great weight of the animal and by the value of the robe, which usually brings from ten to fifteen dollars. As draft animals they have proved a success, for notwithstanding their great strength

endurance, and activity they are as easily handled as ordinary oxen. In one particular only is the buffalo far inferior to other species of cattle, and that is as a milker; but to the ranchman milk is really of no consequence.

Mr. Bedson, the owner of the herd, after experimenting with crosses, is well satisfied with the hybrid, as it is in shape more like the domesticated cow, and is also a fair milker. Yet we doubt that this gain is sufficient to compensate for the deterioration of the fur; while, also, it would be a matter for endless regret if, in the prosecution of these experiments, the original pure race were lost. The rate of increase of the buffalo, though theoretically the same as with other cattle, is really much higher, on account of the lower rate of mortality.

When the present herd is sufficiently increased, it is intended to divide it among several prairie ranches in localities where once the wild buffalo found its choicest pastures. This amounts almost to a restocking of the buffalo region.—*American Agriculturist for November.*

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### Insects.

BY ALTA.

There are a few more weeks yet for us to study some of the "myriad things that live amid the green."

I would encourage you to read all that you can upon this subject. It is of scientific and financial value to farmers. It is estimated that the annual average losses to farmers in this country is \$100,000. Many kinds of birds prey upon these insects and reduce the number. There are some kinds of flies which feed upon insects, most prominent is the ichneumon fly. There are numerous species of this kind of fly, but they can be distinguished by their net-veined wings and the long slender ovipositor, which they use to pierce the caterpillars and other larvæ. The eggs hatch and the little

flies feed upon the larvae thus preventing thousands of white-winged butterflies from infesting your cabbage patch, and laying in turn the eggs which make the great, green cabbage worm. I know a gardener near a city who hires little boys to catch the white butterflies flitting over his cabbage plants. It makes fine sport for the boys and saves the gardener a great deal of time and money. It is only by careful study and investigation that we can understand how to deal wisely with these mute beings around us. But I should not call insects mute, should I? They call, buzz, sing—what is more cheery than the cricket's song. Do you know any animal that is voiceless? It is said that the giraffe never utters a sound. What a contrast between its proud mein and the hundreds of little insects that may fly about it. And yet they possess a power it might envy were it possessed of human characteristics.—*Indiana Farmer.*

### How We Went Birds'-Nesting.

#### THE PEWEE AND THE PARTRIDGE.

One happy summer, out of pure love for wild birds and a desire to know more about their ways, especially of nest-building, we two girls spent weeks in wandering over miles of country, through woods and across meadows and along the banks of streams; and I must say they were among the best spent as well as the pleasantest of our lives.

We hunted for ourselves, waited patiently and watched and observed keenly. We met with many discouragements, to be sure. As we had no books on ornithology, and no one to tell us, we were too early for some of the little architects and too late for others from not knowing their times of building, and so just missed of the nest, as was the case with the chick-a-dees, which we tramped hours and hours to find, prying into every stump and hole in a tree, not finding because we were too early, and then not finding because we were too late—and, I

may as well add, have never found at all.

Then, again, we were baffled and misled by the artful birds themselves. I am ashamed to have to say it—but a thrush beguiled us rods away from her nest till she got us into a thicket of briars, and then slipped noiselessly back and left us to our fate; and we followed bobolinks over a spongy meadow all one afternoon, searching every place where they settled in the grass, and we had the delight of the sweet, gushing, inspiring notes that dropped and lingered on the air, and the sight of the joyous birds floating and dipping, but never a nest!

#### I.—THE PEWEE.

But *one* bird we were always sure of—one can't help finding a pewee's nest.

Perhaps overhead in the verandah, or in a brace of your wood-shed or corn-barn or any out-building: but certainly under a bridge. There was not a bridge in all that region where we did not find one—and never *but* one.

I said *we*, but my companion, being timid about water, shirked that part of our undertaking. So it became with me a matter of determination never to miss a single bridge—and the country hereabouts abounds with them, so many are the mountain brooks; besides, I wanted to know from actual sight whether *every* bridge had its nest, and to see how nearly alike the nests were, all of which I accomplished. I also found that there never was but one bird to be seen—one lonely pewee in that dusky retreat above the plashing water, brooding patiently over the eggs, while the mate was abroad—who knows where?

How many dark places I explored, pressing through tangled brakes, and standing on slippery stones, waiting till my eyes became accustomed to the gloom and could spy out the things they sought. Sometimes the bird would fly off, and after skimming a few minutes over the water would return to her nest but always in silence.

Our most satisfactory experience was when, after ascertaining that a certain nest was directly under the bridge, we went up and by our united strength lifted a plank and looked into it. The bird was absent, or we should not have done this. There were five eggs, perfectly lovely in tint and shape. When we speak of the shape of birds' eggs, it is natural to suppose that they are much after the same type, but it is not so. Some are nearly round, others are elliptical, some of a simple oval, and many almost pear-shaped. Those of the pewee vary in different nests, but are always delicate, being of a creamy white, tinged with flesh color at one end almost as if there were a pink lining to the dainty shells and it was shining through, an almost definite line showing where the roseate wave begins.

This was on the third of June—for we put down the dates—and we had reason to think that the pewees that built under bridges were later than those who choose places around the houses. We know of one house-pair that commenced to lay their foundations early in March, working dilligently till a sudden cold snap came on, freezing the ground so that they could get no more clay, when, quite discouraged, they abandoned it wholly. They need to start in good season if they mean to raise two broods, as they often do, for they appear to be slow builders, perhaps waiting for their walls to dry as they go along.

The nests differ much in the matter of delicacy and finish, just as does the work of men and women, although, of course, they are always of clay mixed with hair, on the same principle that a plasterer uses it in his mortar—the first plasterer, very likely, having learned from the bird in some far-off time.

The nicest pewee nest we saw—on the last day of May—was just inside the eaves of a piazza at the back door of a farm-house, so low down that by stand-

ing on tip toe you could reach into it with your hand; and there were hatched two broods the summer before, though a dog made the steps his lounging place, two cats kept a watchful eye on the eaves, persons were often going in and out, and the farm-hands sat there and smoked during their noonings. This beautiful specimen of bird-masonry was of clay brought from the door-yard, held together with white hair shed by a certain old horse of that color who had drawn the wagon to and from those steps for years, and it was lined with wool picked up from the sheep-fold, so that it was strictly home material, all except the tips of satin-green moss which were inserted as if for decoration. It was caked together as solidly as if it had been baked, and plastered fast to the wood, and if it had been shaped in a mould it could not have been more symmetrical—one of the snuggest, trimmest, neatest little affairs ever made by a bird, round as a cup inside, and the wool, which was beaten together like felt, lapped over on the outside and made a narrow ruche-like border.

Into this small tenement we ventured to look while the mother for a few moments had left her six eggs; which, notwithstanding her public place of living, she resented, perhaps because we were strangers, and directly called her mate, who, perched on a clothes-line overhead and inspected the habitation to discover what the damage was, scolding vigorously. They were an hour recovering from the shock, as we supposed, until we were assured that it was the restless habit of the female to fly off and on a hundred times a day, or to sit "tetering" on the well-curb, in an uncertain way, where she showed all the dexterity of her dim spring suit that stood sadly in need of washing—though truth compels me to say that, after her second brood is out of the way, and family cares are over, she comes out, late in summer, in an elegant costume of greenish-olive. Her companion, too, had a mania of un-

easiness, hovering about and asking what was the matter: and after the fledglings appeared, the questionings and responses would be incessant; it would be "*Phe-bee! Phe-bee!*" on the part of the parents, and "*Here we be! Here we be!*" from the children.

But as unsettled as the pewit may seem, it is a bird that has decidedly conservative views and its attachment to place is strong. For instance, we were told by an old gentleman that in a fissure of a ledge by the side of a lonesome pond on his farm he had seen a pewit's nest for fifty years. There was always one of the broods hatched there—it was evidently an ancestral home for generations of them, and it was distinguished by a name of its own, "*Pewee Rock.*"

## II.—THE PARTRIDGE.

One of our discoveries that same May was the nest of a bird whose haunts one may know well, and yet vainly search for the secret spot where she lays her eggs—we were fortunate indeed when we found our first and only partridge nest.

These birds have come to our door-yard in winter, driven by stress of hunger, have fed on the buds of our one pear-tree, and sought shelter at night on the roost with our hens; but at their own home in their summer retreat they have proved the shyest of all winged creatures.

We had always been used to starting them up, and their "*drumming,*" and the rush of their stiff, swift wings, had been familiar sounds to us in a certain wild kind of pasture whose covert of dry woods, hanging on the edges of a swamp, was a favorite feeding ground of theirs, but the most vigilant search among the fallen leaves and by the side of old logs had never before resulted in our finding a nest.

It was, therefore, a great surprise when the thing happened at last—"happened," because it was by the merest accident. We were gathering trailing ar-

butus on the skirts of a pine grove through which wound the often-traveled wood-path to the swamp, when the mother flew up not three feet from us. If she had only kept her position a few minutes longer we should never have seen that nest full of eggs. Shy indeed was she, though so close on that road-way, for she had chosen her place with wise forethought, having a rock at her back, a cluster of yard-high blueberry bushes and sweet fern around her, and the ground all about of the color of her own mottled and russet plumage—so like it that against the rusty brown of the pine needles and the tawny hue of the fallen oak leaves it would never have shown if she sat still. We parted the shrubs and beheld fourteen eggs in a shallow basin, partly a natural hollow, partly rounded and smoothed by her own skill; and the hollow was carpeted with soft-pine needles, over which was laid a thin covering of the small feathers from her own breast.

The eggs were about the size of doves' eggs, and of a dull pale buff color without blotch or mark. We left them undisturbed, but returned to take a peep twice during the following week, when we saw her liquid eyes all alert; but the third time, when we hoped to catch a glimpse of the brood—though we might have known better—there were only bits of shell. She had stolen away with her little ones who can run and hide an hour after they have chipped through the walls of their prison, and we might as well have hunted for the end of the rainbow, or looked for a cloud that was in the sky last year.—*Field, Wood and Meadow Rambles.*

M. F. Bliss keeps hens. A few days ago he found four of his Plymouth Rock roosters dead. He proceeded to set four steel traps, near the bodies and in two of them, caught an immense mink. One mink, mind you, in two traps.—*Sandwich, (Ill.,) Free Press.*

# The Hoosier Naturalist.

Published Monthly, at 60 cents a year.

To Foreign Countries, 75 cents a year.

R. B. TROUSLOT,  
EDITOR AND PUBLISHER.

*Items of interest solicited from all  
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VALPARAISO, IND., OCTOBER, 1886.

OUR friend E. G. Coe, of the Sandwich (Ill.), *Free Press*, is evidently bound to have the last word. He speaks of the NATURALIST in a very encouraging manner, even offering to receive subscriptions for it. The person who is not pleased or benefitted by genuine praise does not deserve it and is a poor representative of *Genus Homo*. A favorable mention of our H. N. always causes us to hustle around a little faster and work a little harder in our efforts to better it. The *Free Press* will please accept our thanks.

SEVERAL of the readers of the NATURALIST recently had the pleasure of listening to an interesting discourse on geology, at Chapel Hall, by Capt. C. E. Dutton, of the U. S. Geological Survey. The hall was crowded and though but few present had ever given geology more than a passing thought, he was listened to with marked attention, considerable surprise being manifested at

his statement that there were, to his knowledge, 237 acting volcanos at present in the United States. As the captain merely touched on some of his explorations, the following, taken from *Science*, will probably prove of interest:

## AFLOAT IN A CRATER.

Captain C. E. Dutton, of the U. S. Geological Survey, has been recently engaged in making a study of Crater Lake, in Oregon, and the latest advices received from him show that he has discovered probably the deepest body of fresh water in the country. Leaving Ashland, Oregon, on the 7th of July, his party, escorted by ten soldiers, provided through the courtesy of the general commanding the military department of the Columbia, reached the brink of the wall of the lake on the 13th, having brought with them boats so mounted on the running gear of wagons as to bear transportation over a hundred miles of mountain road without injury. The boats bore the transportation without strain or damage, and preparations were at once begun for lowering them 900 feet to the water. The steepness of the wall was very great, being at the place selected, about 41 or 42 degrees, and the descent partly over talus, above covered with snow, and broken ledges lower down. The boats entered the water quite unharmed. The process of sheathing them, rigging the tackle, and lowering them occupied four days. A couple of days were occupied in making journeys around the walls of the lake by boat—the only possible way—and in examining the rocks and structures of the wall in its various parts. Next followed a series of soundings. The depth of the lake considerably exceeded the captain's anticipations, though the absence of anything like a talus near the water line already indicated deep water around the entire shore. The depths range from 853 feet to 1,996 feet, so far as the soundings show, and it is quite possible and probable that depths both greater and shallower may be found.

The average depth is about 1,490 feet. The descent from the water's edge is precipitous; at 400 or 500 yards from shore, depths of 1,500 to 1,800 feet are found all around the margin. The greatest depths will probably exceed 2,000 feet, for it is not probable that the lowest point has been touched. The soundings already made indicate it as being the deepest body of fresh water in the country.

SYDNEY JONES of Grinnell, Iowa, says: "Your paper is too good an instructor for me to be without.

HELLO, GULF! We just woke up in time to receive your October *Companion* the middle of November. We are a little late, Charles, for a fact. Presume you were so rejoiced over getting out the *Companion*, even though it was late, that a dig at us came in quite natural. Well, we have been hustling around lately and if we are not kept too busy recording subscriptions, will get November number out some time before Xmas.

CHARLES H. MARSH, writes that he is collecting many fine specimens of Southern California winter and water birds. He sends us several skins that have been admired by all who see them, especially the Western tammagers. The rufus hummers are about as small as any and are in remarkable good plumage. Please accept our thanks.

AND recently John M. Hubbard, of Lake Village, N. H., being troubled with the publishing fever, has launched the *Curiosity World*, with H. J. Miron, in the editorial chair. Vol. I, No. 2, is at hand and besides looking first-class is brim full of interesting matter. Presume they will favor you with at least one sample copy.

JOHN O. SNYDER, of Waterloo, Ind., renews his subscription and says: "I for one can vouch for the truth of that spider and snake story in last number of *NATURALIST*, for it happened within four miles of our place. I will go over to Auburn, to the Swineford House soon,

and then will tell you how it resulted and who was victor." In the *Scientific American*, Vol. XXXVIII, April 13, page 231, is an illustration of a similar occurrence, described by Geo. M. Hopkins. In this instance the snake was about 12 inches long, and was raised head first until but three inches remained on the floor, when he was liberated by some uninterested person.

WE recently had the pleasure of shaking hands with Miss Eloise Kelse, of Fairburg, Ill. Four years ago we instructed her in the mysteries of taxidermy. She returns to visit friends, the normal museum, etc., and reports good success with her work. It is quite encouraging to hear from those we have initiated in this interesting and profitable work, who are now scattered through many of the States and territories, and with but one or two exceptions, all are collecting for themselves fine cabinets.

THE October *Auk* is at hand and among its many interesting features a beautiful engraving of Audubon, the famous American Ornithologist, taken from an old portrait painted by himself, during his youth. It is with pleasure we read the accompanying remarks by H. W. Shufeldt. We most heartily recommend every lover of bird life to spare up seventy-five cents and send it to L. S. Foster, 5 Pine St., N. Y. City, for this issue of the *Auk*, or, if possible, \$3.00 for the entire year. Audubon, it seems, spent two years of his early life at Naumtes, France. Some twenty-two years later, the H. N.'s editor's father, was born at the same town. On looking at our taxidermal efforts he had repeatedly extolled, and pictured to our youthful eyes, the great genius and remarkable artistic ability of Audubon, the greatest of American ornithologists. Having always looked upon Audubon with awe and admiration, it is but natural that we should treasure beyond all others, the October *Auk* just received and read, and we wish it were possible for every reader



of the NATURALIST to possess the same number. We cannot refrain from expressing our thanks to Dr. Shufeldt, which we believe will be echoed by every admirer of this once grand old ornithologist, for so kindly presenting the engraving and accompanying remarks to the readers of the *Auk*.

WE are in receipt of a sample of Japanese Stibnite, from W. S. Beekman, W. Medford, Mass. It is the most beautiful of metallic specimens. The lustre is remarkable. It is extremely rare and makes a beautiful cabinet specimen, though a trifle small. Thanks.

OUR attention is attracted to an editorial item of the *Ornithologist and Oologist*, wherein it states that besides the *Auk* and itself there are no other similar papers published "for the love of the cause." If the writer will kindly refer to the editorial in Vol. 1, No. 1. of the HOOSIER NATURALIST, we think he will find we are also working for the "love of the cause." Though not so pretentious, or expensive as the *Ornithologist and Oologist* or *Auk*. Collectors of natural history specimens usually find it a continual expense, and unless they have much love for the cause, and considerable spare chink, it is likely soon to be dropped. There are, however, we are pleased to know, many who follow through life, the hobby started in youth, and who have a room, or a case, in which to place their specimens. Our aim, when starting the NATURALIST, was to become acquainted with young people, and if possible enthruse them with such a love for nature that they would continue its study through life. We already experience the same trouble complained of by the publisher of *Ornithologist and Oologist*. Many of the subscribers of the first year do not continue for a second. It cost us in the neighborhood of \$400 last year to run the HOOSIER NATURALIST. It will cost more for this year. Figure it out for yourselves how many subscribers we must have to make it even pay for itself, without counting our time or labor. We charge but *sixty cents* for twelve numbers. We believe we are doing as much for the "love of the cause" as anyone. Were we wealthy and still working for the "love of the cause" we would say, "here, my young friend, you wish to read some paper devoted to nature, you cannot afford to pay cash, well you don't need to. We will send you free, as good a natural history paper as we have the cash to supply, and all we ask in return

is, that once every three months, you write us a short letter, explaining what progress you have made in your favorite study and describing all or a few of the specimens you had collected and identified, or a description of some collecting trip that you thought would be of interest to the readers of this paper." A friend recently said if we were to expend \$100 per issue, for illustrations alone, and starting with 5,000 readers, not more than half of them would write the four letters. About one-third of our old subscribers have renewed for this year. Were it not for many commendatory letters we would think our efforts were in vain, and that the HOOSIER NATURALIST was not worth the trifle asked for it. Yet, in the *Ornithologist and Oologist*, a much older paper, and circulating among wealthier patrons, complains of a lack of support, we are not surprised at the quantity of seed it is necessary to sow in this direction, to reap even a small harvest.



—AND—

## ➤ TAXIDERM Y. ◀

### Salt as a Preservative.

In 1878, Prof. Alph. de Candolle, exhibited to a Natural History Society at Geneva, a jar containing fruits of the coffee plant, collected before maturity in Mexico, preserved in a liquid, which, on being analyzed, proved to be salt water.

Candolle had filled and hermetically sealed the jar fifty years before.

The coffee beans were in a perfect state of preservation.

It was claimed that the liquid was boiled before pouring into the jar.

Commenting on the above, a prominent scientific journal, of that date, says: "This experiment may prove a valuable hint to curators of natural history and medical museums as to the substitution of salt water for alcohol (the inconven-



ience of which every one knows) for the preservation of organic specimens."

Can any of the HOOSIER NATURALIST's readers enlighten us as to whether salt for museum purposes has ever proven practical? If so, under what conditions? R.

### To Preserve Fish.

To preserve fish indefinitely in glass jars, observe the following directions: first, select a jar of the proper size to accommodate the specimen amply, without bending or distorting it in any way; put in the fish with the tail down in nearly all cases; the tail may often rest upon the bottom of the jar, or the fish may be suspended from the hook which is now found in the stopple of the modern museum jars; cover the fish completely with three parts of alcohol and one of water. Discoloration of the alcohol is a sign that its preservative power is weakened and calls for a renewal; fishes in alcohol will never make a good show unless the liquid is kept clear and clean. A label giving the name of the fish, place of its capture, and name of its captor, should be tied on the neck of the jar by means of a piece of a narrow tape passed through holes punched in the ends of the paper. The jars must have accurately ground glass stopples. It is best not to use sealing wax around the joint of the stopple; simply wipe the glass dry, close properly, and there will be no evaporation. Keep the jar out of the sunlight, and well away from stoves.

### Poison for Bird Lice.

Pyrethrum, or insect powder, brushed into the feathers around the head of such birds as hawks and owls before skinning, will prevent the nuisance of the vermin with which they are afflicted, crawling all over the taxidermist while at work.

E. L. B.

### An Apology.

WEST MEDFORD, MASS.

ED. HOOSIER NATURALIST: Dear Sir. A note in your last issue concerning the chemistry supplement induces me to say a word as to the why and wherefore of its non-appearance. Mr. Downs, having ill health, being obliged to give up work, having transferred his interests to your present able editor, Mr. Trouslot, intended to have the "Chemistry" continued, and would have done so had he been able. Having had a serious siege

of sickness myself, I have found time to rewrite the *Aesthetical Chemistry*, and, as it now stands in manuscript form. I think it is entirely different from any system yet published, and I have found beginners who have given it good recommendations, as well as some able chemists who, after having given it a review, declare it should be in every collector's hands, whether chemically inclined or not; as its value is of as much importance to one as to another. In answer to the many inquiries I have received, let me say the *Aesthetical Chemistry* will make its appearance in its new form just as soon as enough exhibit their interest and desire for the same by promising to subscribe. Respectfully yours,

W. S. BEEKMAN.

We always appreciate the efforts of any one to create an interest in any branch of science, else the above unsolicited excuse for Mr. Down's broken contract, (which is, as well, a clearly worded advertisement,) would not appear in the columns of the H. N.

### A Chance to Learn Shorthand.

The *Penman's Art Journal* for October is on our desk. Besides its usual offering in the line of practical education, we are glad to note that the *Journal* has inaugurated a new department of instruction in shorthand writing. Mrs. S. S. Packard, a phonographic teacher of wide experience, is in charge of this department and makes an excellent start. Mr. James E. Munson, the well known phonographic reporter and author, in a letter to the editor warmly commends the *Journal's* new feature and promises his active assistance. As a voucher of his good intentions he contributes specimens of his court notes to the current number. We would say that you will find it difficult to get more for a dollar than a year's subscription for the *Journal*. Ten cents will buy a single copy. Send to D. T. Ames, 205 Broadway, N. Y.

### Exchanges, Questions and Answers, Etc.

For Exchange.—Pressed ferns, bird skins and animals. Also, first four parts "Museum of Natural History" by Virtue and Yorston, colored plates. Correspondence solicited. H. C. Thayer, 43 Pearl St., Los Angeles, Cal.

OSKALOOSA, IOWA,

ED. HOOSIER NATURALIST—Dear Sir: I received a copy of your NATURALIST and like it. Enclosed please find subscription for one year. Yours truly,

MARK MOORMAN.

BOSTON, MASS.

Dear Sir:—What is the best receipt for preserving all kinds of insects? Does preserving come before or after the mounting of insects. Yours respectfully,

C. A. TORREY, JR.

WE were taught to drop our beetle captures into a bottle of alcohol, (half pint) containing, say a quarter of a pound of arsenic. After remaining in the liquid two or three weeks, remove and mount. Your own judgment will soon teach you what kind of insects will be injured by this kind of treatment. Butterflies and moths would look better, killed with chloroform, and preserved by washing the bodies with alcohol containing corrosive chloride of mercury. Test this with a black feather, which, when dry should show no signs of a white deposit. If it does, weaken by adding more alcohol.

A. E. KIBBE wishes to know, through the H. N., the best method for mounting deers. Will not some of our numerous taxiderminal friends answer? He says: "I mounted a light yellow or buff colored squirrel, the fore part of October. I think it more rare than the white ones.

I will exchange Texas bird's eggs in sets, for other eggs in sets. Please send lists, and receive mine in return. Edwin C. Davis, Box 405, Gainesville, Texas.

Our young friend, C. M. Thornton, of Bedford, Ind., wants to know through the H. N. if there is a Virginian eared owl and also a Virginian horned owl?" and is also "very much pleased with August number of H. N." Our "ad" read:—"Sets, per egg, 20 cents."

I have first-class birds' eggs in sets to exchange for a bicycle in good condition. Address in full, with full description of machine. L. Jones, Box 523, Grinnell, Iowa.

Birds' eggs, arrow-heads, and a printing press, (chase  $2\frac{1}{2} \times 3\frac{1}{2}$ ) for birds' eggs, or papers or books devoted to same. Send lists and receive mine in return. J. W. Jacobs, Waynesburg, Pa., Greene county.

L. M. Davis, 203 Newell St., Cleveland, Ohio, wishes to exchange bird skins, first-class, well identified, for same.

### The Sobbing Texas Wrens.

A stranger in the small cities of southwestern Texas is often awakened at early dawn by the beautiful but sorrowful song of the house or sobbing wren. If the stranger has been long away from home and friends and is sensitive to impressions of external nature, he never forgets the peculiar, melancholy note of the tiny songster. It begins in a high, clear key, like the tinkling of silver bells, and descending gradually from one sweet chime to another still sweeter, it suddenly falters, breaks off and sobs like a child, the song dying away in a gasp. The listener is touched with sympathetic emotion, and finds it difficult to repress the uncomfortable feeling that one of the little ones in his own family circle, far away, is weeping and sobbing for his return. The song is heard only in the twilight of dawn, and is repeated but a few times. Then the handsome little singer, with plump brown breast, speckled with shreds of black, retires through some crevice in the house-top, and is rarely seen through the day.

## THE HOOSIER NATURALIST.

When you write to Advertisers you should always mention the HOOSIER NATURALIST.

## THE GARNER

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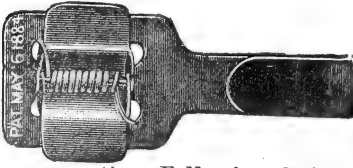
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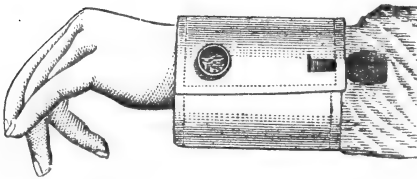
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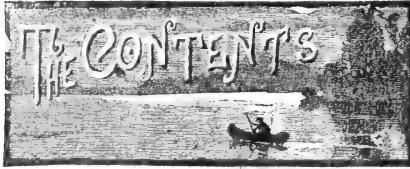
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VOL. 2.      NOVEMBER      1886.      NO. 4.

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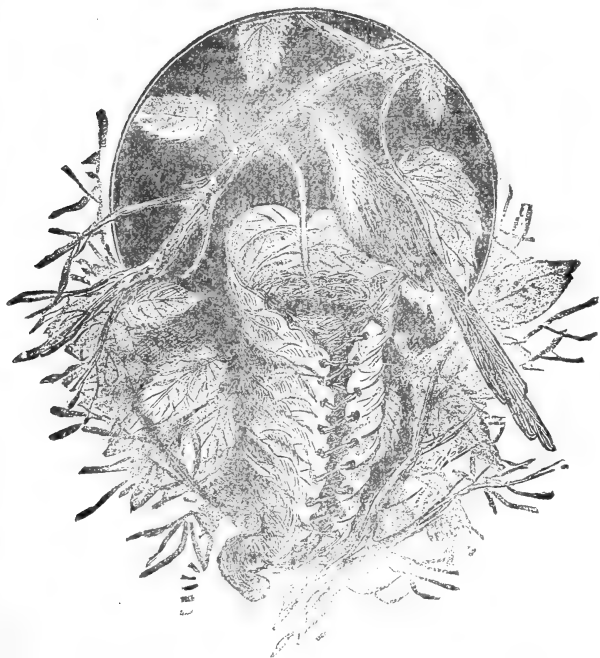
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# THE HOOSIER NATURALIST.

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VOL. II. No. 4. VALPARAISO, IND., NOVEMBER, 1886. } PUBLISHED MONTHLY  
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## The Tailor Bird.

The tailor bird, which is found in India and the Indian Archipelago, is a sober little creature, not more conspicuous than a common sparrow, and is chiefly remarkable for its curious nest, which is made in a singular and most ingenious manner. Taking two leaves at the extremity of a slender twig, the bird liter-

ally sews them together at their edges, its bill taking the place of the needle, and the vegetable fiber constituting the thread. A quantity of soft cottony down is then pushed between the leaves, and a convenient hollow scraped out, in which the eggs may lie and the young rest at their ease.

Sometimes, if the leaf be large enough, its two edges are drawn together, but in

general a pair of leaves are needed. A few feathers are sometimes mixed with the down. This curious nest is evidently hung at the very extremity of the twigs in order to keep out of the way of the monkeys, snakes, and other enemies which might otherwise attack and devour mother and young together.

### Some Southern Indiana Butterflies.

BY W. S. BLATCHLEY.

During the past season Mr. Chas. H. Bollman and the writer collected over fifty species of butterflies in Monroe county, Indiana. Believing that an enumeration of them, together with brief notes relating to the relative abundance, time of appearance, and places of resort of each species, would be acceptable to many who are interested in the attractive creatures, I have prepared the following list. It includes, I have no doubt, most of the species of Southern Indiana, and perhaps will serve as a basis to a complete list of the butterflies of the State, if the readers of the NATURALIST will report the species not mentioned in it which are found in their respective counties. Such a list would unquestionably be a valuable aid to the young entomologists of our State.

The nomenclature and order of French's "Butterflies of the Eastern U. S." have been followed in the preparation of the list.

#### FAMILY PAPILIONIDÆ.

##### SUB-FAMILY PAPILIONINÆ.

1. *Papilio ajax*. Common in open woods. The first one seen was on April 18, and was of the form *Telamonides*. None of the early spring form, *Walshii*, were seen, and I think but few of the chrysalides survive the winter in this locality.
2. *Papilio philenor*. Very common after May 12, in open woodlands and pastures.
3. *Papilio asterias*. Scarce. But three or four specimens were seen; those, in open fields about the 10th of July.
4. *Papilio troilus*. Very common. Found in company with *Philenor*.
5. *Papilio turnus*. Rather common after the middle of May in the vicinity of streams, and along borders of thickets. When pursued it flies high, sometimes above the tree tops, and is

therefore difficult to capture with the net. Two specimens of the black female form, *Glanca*, were taken.

##### SUB-FAMILY PIERINÆ.

6. *Pieris protodoci*. Southern cabbage butterfly. Quite common in the vicinity of cultivated grounds after May 10.
7. *Pieris rapæ*. Cabbage butterfly. Too abundant about gardens.
8. *Colias eurytheme*. Very rare. One specimen of this species was taken in low grounds near a stream on July 17.
9. *Colias philodice*. Most abundant of all butterflies from April to November. Found in clover fields in early summer, and later on they congregate in large numbers about muddy places in roads. About one-third of the females have the wings white instead of yellow.

#### FAMILY NYMPHALIDÆ.

##### SUB-FAMILY DANANINÆ.

10. *Danais archippus*. Very abundant about June 1 and September 10, when the two broods of the season, respectively come forth. A few faded specimens were seen in April, evidently individuals which had hibernated in the perfect state. The members of the first brood frequent open pastures and clover fields; those of the late broods, the vicinity of golden rods and asters.

##### SUB-FAMILY NYMPHALINÆ.

11. *Argynnis idalia*. Rare. Six or eight specimens were taken in the first half of July from low, open grounds.
12. *Argynnis cybele*. Next to *C. philodice*, our most abundant butterfly from May 20 until frost. In June vast numbers may be seen in any cloverfield, gathering honey and chasing one another from bloom to bloom. Later on in the season they are to be found wherever there are thistles or iron weeds.
13. *Argynnis alceste*. Very rare. But one specimen was taken, and that in an open field on July 1.
14. *Euptoitea claudia*. Rare. Two specimens were taken from open fields on the 10th of August, and two more were seen in town about the first of October.
15. *Melitæa phæton*. Not common. Perhaps a dozen in all were seen. Found in low grounds near swamps.
16. *Phyciodes nycetis*. Common in vicinity of streams and about muddy places in roads, often in company with *C. philodice*.
17. *Phyciodes tharos*. Very common. Frequents the same places as *P.*

*nycteis*.

18. *Grapta interrogationis*. Quite common. Three were seen as early as March 16, as the fall form, *Fabricii*, hibernates in the perfect state. Found along roadsides, the borders of thickets and frequently near gardens where hops were cultivated.

19. *Grapta comma*. Common. Usually in company with the last named species.

20. *Grapta progne*. Scarce. Six or eight only were seen. They frequent the vicinity of rocky ledges and shaded ravines. When disturbed they, as well as the other species of *Grapta*, have a habit of making a short circuit and flying back to the very spot from whence they were started.

21. *Vanessa antiopa*. Very common. First seen on March 18, and frequently thereafter for about a month, when they disappeared until June 1, the first brood appearing at that time. A second brood comes forth in September, along borders of streams and in open woods.

22. *Pyrameis atalanta*. Red admiral butterfly. Quite common in late summer and early fall in low grounds, usually near clumps of willows.

23. *Pyrameis cardui*. Thistle butterfly. Rather common from June till November. Frequents thistle patches and open fields during the summer, and in late fall is often seen in orchards sipping the juice from a rotten apple.

24. *Pyrameis huntii*. Less common than *cardui* but frequently seen in company with that species, and also in fields containing wild asters and golden rods.

Indiana University, Nov. 22, 1886.

(To be Continued.)

### Odd Shaped Eggs.

Birds of the same species are nearly all of the same size; so much so, that it is rarely, if ever, that we meet with any remarkable giants or dwarfs of the same species. Not so with eggs. It is different, sometimes, to find two sets of the same species, or even two eggs in the same set that measure exactly alike. And it may also be noted that extra large or small eggs of the same variety or set, are, unless white, of a different color or else the markings are very dissimilar. Beside being very small or very large as the case may be, "odd or curious" eggs

are often very oblong or else very near round, pointed at one end, very rough shelled, or in some instances have a sort of handle on one end. I once found a large hen egg with a sort of "handle" attachment, nearly three-fourths of an inch long. As we see more eggs of the domestic fowls, we generally suppose them to be oftener ill-shaped than other eggs. Have seen hen eggs nearly three times as long as they were wide and have some that will measure no more than .95x1.12. These small eggs have very hard shells and some of them have been thrown 100 feet on the ground without breaking. But to leave the domestic bird. How often do we find small and odd eggs in the nests of wild birds? This summer I found a nest of the meadow lark containing two eggs. One measured 1.13x.81, while the other only measured .90x.75 inches. The smaller one was much the color of an egg of the house wren. I took a set of eggs of the yellow-billed cuckoo. They measured 1.28x.93, 1.18x.87, 1.13x.87 and 1.05x.81.

In a set of four chewink eggs there was one, somewhat smaller than the others and colored exactly like an egg of the brown thrush. Some eggs of the killdeer are very long, and pointed at one end, while others are more round.

Can not some one tell us the cause of this? We often see articles on the variation of color, but do we ever see any causes given for this great difference in size?

JNO. O. SNYDER.

### The Egg Destroyer.

I have read a great deal of comment on the destroyers of birds and eggs, and in nine cases out of ten, the worst was that of the "bad boy." Now in Texas, this is reversed; there is a large number of boys, but very few that care anything about collecting eggs; and for this I am very sorry; for out of this large State, and one so valuable to the oologist, there is only about six collectors, and they are so distributed that the most valuable part of the State—that is—where the rarer birds abound, is entirely left to itself. And the only way one is to obtain these rare specimens is to make a trip for himself, and then, perhaps, he will be so little acquainted with the habits of the birds, as to find so very few, that the trip will be all expense and no specimens.

But to return to the subject. The "boy" is not *our* bird destroyer, but in his place we have the horrible snake; and of these we have "lots" of them, of all kinds and descriptions. From the swamp moccasin to the highland rattlesnakes.

I have often been among the rocks on the side of a hill, looking for nests among the low bushes, when to my horror I would hear the wheezing sound of the rattlesnake directly under my feet. The sound produced by this snake is very deceptive, and is made in such a way that you do not know from what direction it comes. It is a very peculiar sound, and resembles very much the song of the katydid.

Of course I would get down from the rocks in double-quick time, and then try my luck at collecting among the shrubs and vines of the low lands. Here I am again confronted by the spotted moccasin and the adder, whose bites are sure death.

I have often found in nests, not the eggs of birds, but one of those beautiful (?) inhabitants of the swamps; the eggs having been removed by this reptile. And so it is everywhere the same. You may go on the high smooth prairies and there meet the black tree-snake and also the ground rattlesnake. Many times after I had climbed a tree to look into a nest, I would be rewarded by having one of these black snakes present me with his card. Naturally you would know the consequence; I would do the exact thing the great naturalist Audubon did, when the snake presented his head at the opening of an excavation made by a woodpecker, *i. e.*—let go all holds and get to "terra firma" the best way possible. This reminds me of a little incident which happened to me while passing through a deep ravine, during the early part of April, 1885. I ran onto a large moccasin snake basking in the sun at the foot of a large dead tree. Of course I dispatched it as quickly as possible, and on examination found that its body was greatly enlarged about the middle. So of course having a curiosity to know what caused it, proceeded to investigate. In the first place I held my foot firmly on its tail, while with the other foot gradually worked the large lump toward its head, after a little its throat and mouth stretched to an enormous size, when to my surprise there appeared a full-grown log-cock, and on pressing further the second one appeared. The birds proved to be male and female of the pileated woodpecker, or

log-cock, (*Hylotomus pileatus*) and the feathers were only partly wet, which went to prove the birds had just been taken from the hole in the tree overhead, while performing the duties of nidification.

My attention has been attracted many times by the loud clamorings of birds in neighboring trees, and on going there have found birds of every description, flying around a large snake, which was in the act of charming, (as it is called) the snake having part of his body coiled around a limb, while the other part would be held out in space, and as motionless as the limbs themselves. In this way he would remain for about ten minutes, and then his body would begin to sway backwards and forward, and from these movements it seemed that the birds would go wild and become powerless, for they would fly so close as to come within reach of its dreadful fangs, and like a flash the serpent would seize one, and then all was over, for the spell was broken, and each bird would fly from the tree as if loosened from a cage.

I write the above to prove that the "common boy" is not the only egg destroyer, but that the larger part of birds killed in Texas are destroyed by snakes.

EDWIN C. DAVIS.

Gainesville, Texas.

### A Remarkable Cat.

You have heard, perhaps, of cats, dogs, horses and many other animals returning home when they had been carried long distances, but it is seldom that any of these reports can be relied upon. They are generally set down as "fish stories" and no more is said about them.

An incident occurred in DeKalb county, Ind., that is true, however strange it may seem. A gentleman living in the town of Waterloo, was so bothered with rats that he determined to bring a cat and her kitten home from his farm, about three miles from town. The cat was put in a tight sack and then placed in the wagon box. There was no possible chance for the cat to see out the least bit. She was taken through several different streets and finally liberated at the man's house. She staid here for three or four weeks and when the kitten was old enough to care for itself the old cat disappeared, and when the man next went to his farm he found her in his barn, all safe and sound. She must have made the journey in less than two days.

J. O. S.

### The Baltimore Oriole.

It is curious to observe how capricious birds sometimes are about building, and how some slight circumstance will cause them to change their plans, or delay, or abandon their work. They are especially affected by the weather. Nothing disheartens them like a high wind. We had three windy days in succession about the time when some of them were just beginning. The sky was brassy with yellow light, the dry street was swept as clean as if done with a broom, the gritty dust was sifted into the houses, the leaves were all turned wrong side up, and everything in the outward world seemed under a miserable spell. And the birds showed it as much as anything. They were annoyed to desperation. The wind blew their feathers almost over their heads, like so much ruffled, furlbelowed drapery set a-flying, till the owners, half beside themselves, began to make querulous protest, as if they could put a stop to it.

Everything was out of tune; everything was disturbed. Some sparrows came and sat by the hour in the top of an old pear tree, and looked the country over with an air of abject hopelessness. They had contemplated building near us, but they never did. An oriole, however, had already begun, and her nest was well along when this blasting simoon came on. It was the female who had done the work. She is usually the one. She seems to think herself more capable than her mate, and therefore only allows him to bring material, after which he may sit by and look on, but on no account meddle.

This one had selected a branch of an elm, so near the house that we could see everything she did. And on the bright mornings, before the wind began to blow, we had watched her as she fastened the cords, then twitched, and yanked, and pulled away at them, bracing her feet till she nerly fell over backwards, putting so much violence into her work that she must have tired herself all out in a little while, as was doubtless true; for we noticed that she did not do anything on it except for an hour or two at that time of day.

She had been engaged upon it four mornings, and on the fifth she came the same as usual. It was then blowing a gale, the branch was swaying, and the leaves fluttered like rags. She looked at the half-completed nest, waited awhile as if meditating, then flew away, and

never came back to it. And the pretty hammock, which she had slung on the twigs, held fast, not only through that wind but through the storms and blasts of the next twelve months, and at this very moment is swinging in a summer breeze.

But this could not have been a case of mere discouragement. The place was one of her first choice, safe, convenient, slightly, beautiful, where she could sit and see the morning sun, and look down on the world below. If it had been on the *third* day of the wind, it would seem reasonable that she might have succumbed in sheer despair; but under the circumstances I believe it was temper. There is nothing like the female oriole for temper. A few instances are all that is needed in proof.

That same summer, on a different elm, were an oriole's and a robin's nest, both held in peaceful possession as far as one could judge. The latter was already occupied by a brood, half grown; and one day, in the absence of their parents, dame oriole steps across the way to this unoffending neighbor's domicile, snatches up one of these defenceless little ones, carries it a step or two, then with all her might hurls it far out into space, and watches it fall the long way down to the ground, which it strikes with a thud that beats the breath out of its body.

Knowing this fact, and that another of these sweet-dispositioned creatures was seen and heard raving so at her mate, for daring to tuck a piece of string into the nest when she was not there, that he flew away and hid from her fury, or rather betook himself to a place far off from her—knowing these things, it is quite safe to presume that another one, which got hung and so died, was the victim of her own passion. She might have accidentally become entangled in one of the nooses with which she was fastening a strand in her nest; but more likely she was so blinded with rage at something that did not go to suit her that she actually lassoed herself, and so met with that awful fate, although it has been suggested that she did it intentionally—hung herself.

But I don't think that a bird would commit suicide. Cats have been known to—if we can believe the story—and dogs. An elephant is capable of doing such a thing; and horses, where there is no Society for the Prevention of Cruelty to Animals, have abundant cause to, but not birds. Still, the fact remains, she was hung; and, as nobody could reach

her, there the poor thing dangled at the door of her own house till her feathers and flesh wasted away and the little white skeleton only was left.

And now I begin to feel some compunctions of conscience for telling these dreadful things, especially since one book on ornithology calls the orioles "genial," which must be a figure of speech. Genial! To whom? Why, they are sometimes worse than the Philistines of old toward other tribes; and they have been suspected of demolishing the nests of smaller birds—circumstantial evidence being against them.

But there are things to offset all this. Such liquid sweetness, such rapture, such a gush of melody, such exhilaration as there is in that triumphant song of his! There is all the freshness of May in it, the blueness of the sky, the beauty of apple-blossoms, the fragrance of violets—all the sweetness and loveliness and newness of the spring in one bird's voice.

And what a glory of color he is. And what a toiler is she; so painstaking, so diligent, so skillful! Of the ancient craft of weavers, what a web she makes without either loom or shuttle. Those pensile nests are all alike with a difference—pouches of interlaced hempen string and tough fibres of bark and the like, threaded through and through with long hairs from a horse's main or tail; woven as no hands could do it; strong, durable, tight, warm, and elastic as crinoline—a piece of work to be wondered at and admired.

It is not so easy a matter to get sight of the particolored decorated eggs, of varying tint, from bluish to roseate, adorned with lines and dots, scratches and dashes in russet and lavender. But the young are apt to make themselves visible in an almost calamitous way; for, venturing to peep over the threshold of their home too soon, they are likely to come tumbling down, using their wings just enough to save themselves from harm, but not able to fly to a place where they will be safe from marauding cats. If, beholding the accident, you pick up the rash adventurer and set him on some post, and then wait and listen, you will find that no sooner has he lifted up his voice than from some quarter one or both the parents appear, and manage to comfort him, keeping a vigilant watch over him till you are off your guard, when, by some trick which is equal to any sleight-of-hand performance, they spirit him out of sight and hearing in as

whist a way as if they were conspirators or fugitives for their lives.—*Field Wood and Meadow Rambles.*

### Birds of Winter.

There are no more winsome guests in winter than the graceful little snow-bird. What beautiful, perfectly-finished pieces of nature's workmanship they are! How intense is the lustre of their tiny black eyes! What a vivid ray of intelligence darts from those electric life centers! All birds impress us with a keen sense of their abounding vitality; but the snow-bird is one of those in which we recognize a something closely akin to an acutely-sensitive, delicately organized human being. There is a dream suggestion of poetic beauty about the fairy-like little creatures. The pure ivory whiteness of their slender bill, so daintily turned, so smoothly polished translucent and pinky in the sunlight is a unique mark of aristocratic distinction.

Of a different race from these mild and gentle pets are the pugnacious English sparrows, who battle so fiercely over the possession of a bigger crumb of a fuller grain. They are of the earthy and their chatterings, their scoldings and squabbles are quite as commonplace as those of their human brother. Crowding to the feeding ground in noisy flocks, they settle down contentedly to the repast, each fluffy little ball of feathers strongly relieved against the snow, then rising with many fluttering and chirpings, they circle merrily the welcome gleams of winter sunshine leaving the snowy surface just trodden so diligently by them covered with an intricate pattern of delicate net-work, the markings made by those slender but busy little feet of theirs.

The chickadee, or titmouse, that tiny bird whose cheery courage in braving the winter Emerson has shown forth in the crystal mirror of his verse, is our occasional guest at this season. In his thick plumage of gray and black, relieved with white, so suggestive in color and texture of the furs worn by some arctic explorer, he bravely makes his way through the snowy wood, perching now and again, while his merry note rings forth no unmeaning challenge to all the powers of the air that await in the train of old winter and do his bidding. Ice, frost, snow, sleet, hail, rain—he cheerfully meets them all undaunted.—*Ph. Heinsberg v. New York.*



### Pitcher Plants.

Perhaps most of the readers of the *HOOSIER NATURALIST* are aware that some species of the very interesting genus of "Pitcher Plants" are natives of Canada, yet few may know that a small but very beautiful specimen of this *genus* of Canadian flowers is to be found in the woods near Listowel. Such, however, is the case; and as some account of the slipper-like flower may be of interest to the admirers of Canadian botany. I will attempt to describe it. The most attractive feature of this wild wood plant is its flower, which is about an inch long, and shaped much like the shoe of a Chinese woman. The color of the flower is yellow, the inside being marked with lines of brown, and in size it would contain about a thimbleful of matter. This flower hangs gracefully from the top of the plant stem, and at its junction, or what may be called the "heel" of the slipper, are one or two-tongued shaped petals, covering two small seeds. The stalk of the plant is over a foot in height, the leaves are of a light green hue, four or five in number and in shape and appearance much resemble the plantain, the ribs running from stem to point like the lines of longitude on a hemisphere. The largest leaves are towards the ground; there are several inches between each leaf; those towards the top of the stem are quite small. This plant is an annual and is found only in spongy places beneath the shade of the tamarack. It flowers but once in the season—in the early part of June; only one flower is found on each stalk. I have named this species the "Slipper Flower."

W. L. KELLER.

### The Tenacity of Life in Insects.

The longevity of insects appears to be little understood. More experiments are requisite to arrive at facts on this subject. A common bedbug mounted alive in an ordinary microscope mount or sunk cell, and covered with round glass, as usual, in a week from the time of its imprisonment, laid six eggs. These eggs were mounted in another slide in order to watch the process of incubation, and in another week, five of them hatched. The infant bugs, left to themselves, lived apparently quite as a happy family, with nothing whatever to eat for 17 weeks, when two died. After four weeks at 21 weeks old, another died; at 23 weeks old another died; and the last died at the age of 24 weeks, or

nearly half-a-year. These insects had nothing observable to eat the whole time of their existence, or any known means of sustenance. Another similar case came under my notice. A friend of mine confined two or three small insects, about the size of a young bug, and not unlike it in shape. For two years they had nothing perceptible to eat. A dead fly was then introduced into the mount, it being supposed that they might be getting hungry. It is now four years since they were imprisoned, and with the exception of the fly, which they do not appear to have touched, they have had nothing to eat, yet, on looking at them a few days ago, I found them as lively as ever.—*J. L., in the Naturalist's World.*

### A Music Loving Toad.

Thirty years ago I arrived from England at the age of 41, and took up my abode (after a sojourn in New York for the winter) at Madris, N. Y. I boarded with an Englishman whom I had known in my earlier days, and having a good deal of leisure I devoted my time to books, and having discovered that my host had an old 4-keyed flute, amused myself by rigging it up and playing the "old melodies" of a summer evening, on the front porch. After an evening or two spent in this way, I was interested to see a toad come out from beneath some old dilapidated steps leading up to the front, and hop towards me. Now I had never seen a toad *hop*, and was exceedingly amused to watch the unusual and rather ungainly agility which my companion seemed to possess.

In consequence, I left off playing, at which the toad stopped coming toward me, and retreated into his hole. This, at once induced me to repeat the strains and he again reappeared. Every evening for some time he came at my summons and at length sat on my feet, seemingly exceedingly gratified with the music. When I ceased he would look up at me, and if I did not recommence he would retire. During the music he would sit perfectly still on my foot, seemingly in great enjoyment, seldom moving while I played. I regret to say that, after ten or twelve evenings spent in this way, with many visitors to see the "old toad that wants to dance," carpenters were summoned to prepare the steps, and I saw my friend and admirer no more.

S. J. HUMPHREY.

Please ask your friends to subscribe for the *HOOSIER NATURALIST*.

### The Grosbeak.

"How, when morning softly blushes,  
At my window sitting near,  
Hear I, from the alder-bushes,  
Grosbeaks' notes, and songs of thrushes,  
Welcoming the opening year!

While the amorous doves are cooing,  
Swallows darting here and there,  
Dusky martins twittering, wooing,  
Swift their flying mates pursuing  
Through the soft and humid air."

"And there a song-bird built his nest,  
Of slender twigs and moss and clay,  
And trilled from out his happy breast,—  
His happy breast,—  
The livelong day."

The rose-breasted grosbeak, though a very elegant bird, is but little known; yet few of our domestic birds much surpass him in sweetness of song, or beauty of plumage. He sings by night as well as by day, and the notes are clear and mellow. Caged, he becomes very tame in a short time, and being well contented in confinement, lives many years.

Oliver Davie describes the eggs as "greenish-white, more or less spotted over the entire surface with blotches of reddish-brown; the eggs resemble very closely those of the summer redbird or scarlet tanager; usually four in number; size from .95 to 1.08 in length by .70 to .76 in breadth. The rose-breasted grosbeak has a widely extended distribution during the summer months, although it is nowhere very abundant. Found as far to the east as Nova Scotia; to the north as the valley of the Saskatchewan; and to the west as Nebraska. Breeds from the Middle States northward. It is everywhere noted for its beauty and musical ability. This bird with a plump round form, the male with head and neck black, bill whitish, wings and tail white and black, with the breast and under wing-coverts rosy or carmine red, should be called the rose-bud of our North American birds. The parts which in the male are black, are streaked with blackish and olive-brown in the female, and the under wing-coverts saffron-yellow, which, though not so striking in contrast, makes a bird of handsome appearance. The nest is placed in a low tree on the edge of woods and on the bank of a stream. The latter seems to be a favorite site. I found several nests in one season on the banks of the Olentangy river, Ohio, placed in trees of dense foliage. It is a shallow structure composed of small twigs, vegetable fibres and grass.

### Do Beetles Talk?

I was watching some dung beetles the other day, on the Hunting Island. Several of them were rolling their pellets along, when one fell with his load into a deer track. After several unavailing efforts he stood at the edge and apparently did a little thinking. This was the position of affairs: The pellet lay near the toe of the track, which was deeper than the heel, but the deer, as is frequently the case, had dragged his toe in walking and made a light furrow.

The beetle started nimbly off and joined one of the others whom he assisted in rolling his burden for a foot or more, until they were close to the scene of the accident. Both now left their charge and stood by the edge of the track, where a regular consultation plainly took place. Each in turn went below and the pellet was moved to either end of the track, but could not be lifted out. While both were below engaged at this futile task, another one came along and apparently said something, for at once all three began deepening the little furrow where the deer had dragged his toe. The newcomer pushed the loose earth down to the two below, who worked it backward. When a regular incline had been formed, he ceased his work and stood on one side, while the other two extricated their precious charge without any further mishap. I fancied, too, that when it was in safety, its owner made a sort of "thank you, sir," movement towards his two friends.—*Walter Hoxie, in Ornithologist and Oologist for November.*

### Be Not Greedy.

When you come across a large number of the nests and eggs of one species, do not take every nest you can lay your hands on; allow some to remain untouched. A writer in the "*Ornithologist and Oologist*" justly describes such a collector under the title of "The Great American Egg Hog." It is not a very elegant expression, but it certainly hits some collectors very hard. If you are going to collect eggs for the purpose of showing them to your friends, like so many pretty beads, you had better give it up at once. Collectors of this kind do more harm than good.—*Davies' Nests and Eggs of North American Birds.*

When you receive our invitation to renew, please don't delay, but send in your subscription at once.

### To a Dead Lark.

Justly bejeweled, dear bird, in morning dew,  
What ruthless fate bestowed on thee such death?  
Why should have fled thy song-emitting breath  
That hymned from altars high in heaven's lone blue?  
Some cruel hunter's hand "humane" hath low  
Laid thee, with blood on thy unthrobbing breast.  
Thou, nevermore, can'st reach thy love-charmed nest,  
But this unworthy sepulcher must know.  
Adding my tribute to nature's need,  
To thy yet eloquent tho' voiceless clay,  
At thy song-time, which thou didst gladly heed,  
Thou singing herald of the pomp of day,  
I think of souls from earthly limits freed  
That they in heaven may richer harp-strings play.

T. G. LAMOLLE.

### Plexippus in England.

November *Entomologist* chronicles several captures of *Anosta plexippus*, one of which we give below:

Lepidopterists will be interested to learn that a fine specimen of this butterfly has recently been caught in this town. "Strolling along the Westover Road on the 30th of September, I saw a large butterfly flying above the road. Watching it for a few minutes it came down and settled on a single dahlia, and leaning over the railings I caught it between my finger and thumb." Great credit is due to Mr. Watts for the manner in which he managed, without any entomological appliances, to take and kill the insect without doing it the slightest injury. It is a magnificent male, measuring four and a half inches from tip to tip, and with the exception of a small chip on the hind margin of the right primary it is absolutely perfect, clearly indicating that it has been bred in the neighborhood. Thanks to the generosity of the captor the specimen is now added to my collection, and I shall be pleased to show it to any entomologist who may happen at any time to visit Bournemouth. Mr. Jenner Weir, just ten years ago, in commenting upon the occasional occurrence of *plexippus* (*archippus*) in this country, drew attention to the wide range of this Danaid in America, its native habitat, and expressed his belief that the species would probably become naturalized in this country, as it had been in Australia, New Zealand, and New Guinea. The well-authenticated records of captures since, afford ample confirmation of the correctness of this gentleman's view.

If *plexippus*, with its capability of adaptation to varying climatic conditions and power of flight, enjoy in this country the same immunity from the attacks of insectivorous enemies, which Bates, Trimen, and other naturalists ascribe to the *Danaidæ* generally, its rapid propagation may be looked upon as a matter of certainty. Henceforth our list of the British *Rhopalocera* will be incomplete without the addition of the family "*Danaidæ*."—W. McRae, in the *Entomologist*.

### Wanderings of Plants.

The ways by which seeds are carried to different parts of the world and new plants constantly springing up is an interesting subject for research. Ever since man fell from the estate wherein he was created, he has been compelled to wander upon the face of the earth, and even so the plant life is continually moving from place to place. Different causes continually combine to change the character of the earth's surface and its aspect is constantly affected by the successive vegetable races.

Probably the greatest influence which is instrumental in the distribution of plant life is the wind. Hardly a breeze passes but what some tiny seed is lifted up and carried to a new resting place, where it soon springs into life. The form of some seeds afford abundant evidence that they were designed for transportation. The feathery appendages of the thistle, dandelion, and other compositæ seeds, the wings of the maple, ash, and other like seeds bear them up as they are driven onward. Of the small number of plants known to Linnæus, one hundred and thirty eight were described as having winged seeds.

The great trade winds and heavy wind storms of our tropical regions, not only sustain and carry to distant lands the lightest products of vegetable life, but large and heavy fruits and sometimes even branches of trees and shrubs laden with blossoms or fruit, are carried many miles through the air, before a resting place is found.

The cryptogamia also plays an important part in the wanderings of plant life. Millions of spores are ever present in the atmosphere, and their tenacity for life is simply wonderful. Soon finding a resting place and a sufficient degree of moisture and heat, they generate. Most of the flowerless plants are hardy. Mosses, lichens and liverworts greet us at

every step. On the most barren rocks they find a home and pave the way for the higher orders of the vegetable kingdom.

Water currents also act as agents in dispersing our flora. The small streams and the mountain torrents illustrate this fact on a small scale; but 'tis the great rivers and their large tributaries; the boundless ocean being the most striking examples.

What is generally known as a "green raft" is a great means for conveying both plant and animal life. These rafts are noticeable on the Mississippi river and its tributaries. They are often many years in forming and when at last they break away from their hold, transfer over many miles of water, huge forest trees, shrubs and the smaller herbs; in fact, a perfect representation of the flora of the region in which it originated.

Single seeds may be carried great distances on the surface of the ocean. Darwin has demonstrated that a large proportion of seed, will grow after an immersion of from twenty-eight to forty-two days in salt water. Hence many miles might be traversed by some small embryo, and, resting on a distant shore, perpetuate its kind.

Last of all, we may consider the birds of the air as our servants in transferring our flora. They have been known to travel at the rate of fifty to sixty or even ninety miles an hour, consequently they would in a continuous flight of a few hours or even days, cover a great distance, and in various ways carry seed.

Added to all these natural means we place the artifices of man. While traveling from place to place with his cultivated vegetables and his domestic animals he is often, unconsciously, spreading and finding new places for some plant, which may or may not prove of benefit to his fellow-men. The ballast of ships, articles of commerce, and the collections of naturalists all tend to perform this great work of populating our globe with all manner of plants as well as animals.

GEO. E. BRIGGS.

### Beetle Hunting.

J. D. SHERMAN, JR.

Saturday, June 12, was as clear a day as one could have wished for. Warm, but not hot; it was one of those days which naturalists always enjoy to spend in the field.

Eight o'clock found me on the road. Passing through low vegetation, I made good use of the sweep-net and secured several specimens of the very common *Ellychnia corruscus*, some *Pachybrachys othorus*, many *Cryptocephalus 4-maculatus*, a black leaf beetle, one-fifth of an inch long, having two red spots on each elytron; and *Cuscinoptera dominicana*, a chrysomelam somewhat larger than the preceding; black, white beneath.

Of these, *E. corruscus* is extremely variable in size, some specimens measuring .35 of an inch in length and .20 of an inch in breadth; others only .20 of an inch long and one-third as wide.

*Telephorus lineola* was very common. *Diabrotica vittata* was met with. Of these, the former is a beetle .18 of an inch long, of a shining black color, with the prothorax wider than long and yellow, with a wide dorsal black stripe; the latter, the striped cucumber beetle, is too well-known to require description here.

*Dineutus assimilis* was common in a near-by pond and with it occurred in lesser numbers, the narrower, more convex, black and shorter *Gyrinus picipes*.

*Cicindela patruela* was very common on the grassy paths running away from the pond. From the shrubage on either side of this path I swept *Chrysodina globosa*, *Hydnocera humeralis*, *Obreera tripunctata*, and *Brachyacantha virgata*, the latter being especially common on the milkweed.

*O. tripunctata* is an elongate narrow beetle with very long antennae. It is black with a yellow prothorax thrice dotted with black.

*H. humeralis* is a small bluish black beetle .15 of an inch long, having a reddish-brown spot at the base of each wing-cover.

Penetrating deeper into the woods, I found, on the low trees, *Brachys orata*, *Odontota nervosa*, *Aphthona picta*, *Adimonia rufosanguinea*, *Ceratomya caminea*, *Limonius quercinus*, *Leptura zebra*, *Chrysodina globosa*, and other species.

I also, to my great astonishment, swept several specimens of *C. 6-guttata* from the leaves of these low trees!

*A. rufosanguinea* is red with the antennae black. It is about .20 of an inch long and is quite abundant.

*C. caminea* is more common than the preceding and is only .16 of an inch long. It is red or yellow, with the head, front and side margins and three lateral spots near the suture of each

elytron, black.

1. *picta*, a small brownish beetle with bluish elytra one-twelfth of an inch long, was common everywhere.

*L. quercinus*, found on the shrub oak, of a shining brown color and from .16 to .19 of an inch, abounded.

Found one dead specimen of the beautifully variegated *L. zebra*.

*Telephorus rotundicollis* was captured here "on the wing."

*Lebia grandis* was taken for the first time in 1886.

Well pleased with my captures I returned home.

### The Audubon Society.

THE Audubon Society, which is doing a highly praiseworthy work, has good reason to be satisfied with the result of its efforts thus far. Although the first certificates of membership were issued only last April, there are already more than 17,000 members enrolled. These figures indicate a widespread interest in the protection of birds, which the society set out to promote. This is an object which should appeal to all lovers of nature and of one of the most attractive features of rural life—the song of birds. The work of the society is largely educational, and no expense is connected with membership. Its branches cannot extend to widely. It is believed that the use of the heads and wings of birds as ornaments has diminished considerably since public attention was called to the danger that many varieties of birds might become extinct if the demand for them by milliners continued; and the good work ought to go on.

### Cruelty.

To tear the feathers from the quivering flesh of a living bird, to hurl it into the air from a catapult, to shoot at it as it flutters about, perhaps killing, perhaps only wounding it and dooming it to living torture, and to repeat this process with a hundred birds, is what some men term sport, and it was watched admiringly by a thousand spectators in a New Jersey village last Saturday afternoon. But if it was sport, how would wanton cruelty be described? And if it is tolerated in these days, why have we abolished the bear-baiting of the good old times?—*Ex.*

### The Friendship of Squirrels.

A lady friend informs us that where she once lived in Indiana, she became acquainted with a poor family there known as "Crackers," who came from one of the old slave states, and who brought with them the thriftlessness of their early lives. One of its members was a rough, uncouth boy of about 12 years of age, who had tamed several red squirrels, which he had caught in various ways. The little creatures followed him about the house wherever he went, and would enter his pockets and climb up under his pantaloons at their pleasure. One day our friend, being interested both in him and his squirrels, left word with his mother that she would like to buy one of his squirrels; but when she next called he was out of temper because she had proposed the purchase. The idea of parting with one of his pets was painful to him. When he found that the lady had kindly wishes toward him, and intended no offense, he said to her: "These squirrels are my friends. I have no other playmates. I wouldn't sell one, even for five dollars, to anybody in the world!" The comparatively wild boy and the wild animals had come to such a knowledge of trust in each other as can be characterized only by the noble word friendship; an attachment from intimate acquaintance and a reciprocation of kind offices.

### The Minerals in Our Bodies.

In the body of a man weighing 154 pounds there are about  $7\frac{1}{2}$  pounds of mineral matter, consisting of phosphate of lime, 5 pounds 13 ounces; carbonate of lime, 1 pound; salt, 3 ounces 376 grains; peroxyd of iron, 150 grains; silica, 3 grains. Making 7 pounds 5 ounces and 49 grains, with minute quantities of potash, chlorine, and several other substances. The rest of the system is composed of oxygen, hydrogen, nitrogen, and carbon; 111 pounds of the oxygen and hydrogen being combined in the form of water. Though the quantity of some of these substances is very small, it is found absolutely essential to health that this small quantity should be supplied; hence the importance of a variety of food. If we furnish nature with all the material required, she will select such as the system needs, and always just in the proper quantities.

The stalest egg in this world is in Washington. It was found in a guano bed and is 1,000 years old.

# The Hoosier Naturalist.

Published Monthly, at 60 cents a year.

To Foreign Countries, 75 cents a year.

R. B. TROUSLOT,  
EDITOR AND PUBLISHER.

*Items of interest solicited from all  
Naturalists or Collectors.*

## NOTICE.

1. Copy must be written on but one side of the paper.
2. Advertising is invariably cash in advance.
3. When asking for information a stamp must be enclosed for reply.

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Entered at the Valparaiso Post-office as second-class mail matter.

Publishers wishing to discontinue their papers, can have their lists filled by us, at very low rates.

VALPARAISO, IND., NOVEMBER, 1886.

WE note with pleasure the improvements in several of our contemporaries. We only hope they are to be permanent.

EACH subscriber to the HOOSIER NATURALIST is allowed one free exchange notice not exceeding thirty words.

WHITE owls are what one might call abundant this season. In this immediate vicinity three have been shot. Several white weasels have also been observed, one having been brought to us.

BULLETIN No. 9 of Purdue University School of Agriculture, by F. M. Webster, assistant U. S. Entomologist, is at hand. Those interested in *Meromyza americana*, should address Mr. Webster, at Purdue University, Ind., for a copy.

A FEW subscriptions expire with this issue. We would be pleased to have every one of them renewed. Can you spend your money to better advantage than for a year's subscription to the NATURALIST?

WE print 500 extra January NATURALISTS. Our friends will greatly oblige us by acquainting us with the names of their friends, who, on examining a sample NATURALIST would be likely to subscribe. Or let us know how many you can distribute to advantage and they will be forwarded.

ANY subscriber to the HOOSIER NATURALIST intimating a desire to receive our forty page catalogue or "Guide" will be accommodated at once. Then, should you not find therein nothing of benefit to yourself, please do us the kindness to hand to some one likely to be interested by its contents.

SHOULD you, kind reader, desire anything in the printed line: cards, envelopes, letter heads, bill heads, statements, circulars, etc., please send for our estimates before ordering elsewhere. Considering quality of paper and workmanship we are confident that our prices are as low, if not lower, than those offered by other parties.

WE would be pleased to correspond with the secretary of some Agassiz Association with reference to using the HOOSIER NATURALIST as their organ. It is our opinion that such an arrangement could be perfected which would be of material benefit not only to the society but to this paper as well. As the H. N. already goes to a large number of A. A. chapters, to such as might associate with us, the advantages would be manifold.

WHEN we cease to advance, just at that moment do we begin to retrograde. It is even so with the publisher. The moment he ceases to make new "inducements," the moment he ceases to push his interests, just that quick will he lose prestige. An editor must work hard twenty hours a day and have one eye open the remaining four hours. He must always be "awake" to the interests of his subscribers if he wishes to succeed. It has been our misfortune to have more irons in the fire than the united efforts of six could well attend to. In consequence the H. N. has been somewhat belated. In last issue we intimated a possible appearance of November H. N. before Xmas. This has been accomplished, though, on several occasions we found it necessary to infringe on the "four hours" to keep the orders up and record subscriptions. Now, with expert and additional help, we are safe in predicting

an appearance for December H. N. before the expiration of that month. It would gratify us exceedingly if every single one of our present subscribers would put their shoulder to the wheel and secure at least one subscription to the NATURALIST. Let us know how many sample copies of the H. N. you can use to advantage for this purpose and we will forward them gratis.

It always pays to read the advertisements. You can not fail of finding something among them that will interest you. Advertisers are continually changing their stock and when they have something new, or some remarkable bargain they are sure to change the wording of their advertisement, hence the necessity of always reading carefully what each advertiser has to say. You will confer a great favor on the publisher by giving the H. N. credit when replying to some ad seen in its columns.

We wish to double our present subscription list, and propose to use every legitimate means within our power. Hence, from this issue of the NATURALIST, everyone subscribing through our agents direct with us will receive either a quarter gross of our box of our famous "deal" pens or a pair of Decatur cuff holders. The regular price of which is twenty-five cents each. Thus each subscriber will receive a valuable premium which will be of material help to the penman or agent soliciting subscriptions. Invassing outfits furnished for 40 cents, these are not, however, absolutely necessary. We are not, do not pretend to be, asking money by this arrangement. It we propose to push, to give to our friends all, and more than there is in it, present, for ourselves. Our reward will come in the future.

We recently received a letter from a somewhat interested in natural history inquiring if we still published the HOOSIER NATURALIST, and if so, if we were receiving sufficient encouragement warrant our continuing same. He expressed a desire to subscribe, inasmuch as he enjoyed reading papers simply devoted, but was loth to send his subscription to a paper he thought would appear for a few months only and suspend. For the benefit of this gentleman or any other doubtful person, can unhesitatingly say that there is the slightest possible reason why we should suspend. We have a fair subscription list, receive a reasonable amount of advertising and in every way

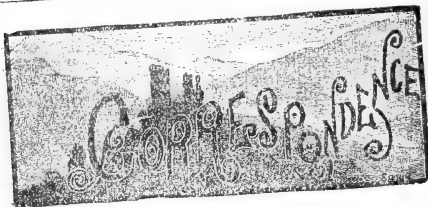
are feeling quite healthy. January H. N. will be out promptly on the twentieth of that month.

THE Audubon Society could surely find missionary work to do here in Valparaiso. Yesterday, a good looking young lady entered our store, and while she was being waited upon, we counted no less than twenty-three quail heads, nestled closely together and forming almost a complete border to the large hat she wore. The heads looked quite pretty and in color they matched the hat nicely. The question at once arose, were the birds slaughtered solely for millinery purposes, or did some hunter shoot them for sport and then save the heads? If the birds were slaughtered for hats, then most assuredly should both shooter and girl be condemned. But how about the hunter killing for sport, and then saving the heads for hats? Economy surely.

### Life in the Sea.

Brimful of life at its surface, the sea would be encumbered if the prodigious power of production was not kept somewhat in check by the antagonist power of destruction. Only imagine that every herring has from fifty to seventy thousand eggs! If every egg was to produce a herring, and every herring fifty thousand more; were there not an enormous destruction going on, the ocean would very soon be solidified and putrified. The great cetacea drive them toward the shores, ever and anon diving into their ranks and swallowing up whole shoals. The whiting eat their fry; cod again devour the whiting. Yet, even here, the peril of the sea, an excess of fecundity shows itself in a more terrible shape. The cod has up to nine million of eggs, and this creature, of such formidable powers of maternity, has nine months of love out of twelve. No wonder that the fishing of this productive fish has created towns and colonies. But even then, what would the power of man be, opposed to such fecundity? He is assisted by others, among which the sturgeon takes chief rank. Then, again, the sturgeon itself is a very fecund fish. This devourer of cod has itself fifteen hundred thousand eggs. Another great devourer is not proportionately re-productive, and that is the shark. Viviparous, he nourishes the young shark in his bosom, his feudal inheritor, who is born terrible and ready armed. Hence are sharks called in many countries sea-dog. —Blackwood.





AND

## TAXIDERMY

### A Few Hints on Preparing Skeletons of Birds.

Of all subjects pertaining to ornithology, osteology seems to be the most generally ignored. Most people seem to have a notion that the study of osteology is dry and uninteresting, and that it is a difficult operation, requiring long time and practice to prepare a bird's skeleton. This is a mistake. Osteology is *not* a dry study if pursued in the proper way, and any person who can skin a bird can learn, with a little patience, to prepare a skeleton. To take a textbook and learn its contents word for word would certainly be dry work in this, as in any other study, but if you prepare specimens yourself, and study as you go, you will find it a very attractive and interesting subject. Learn the names of the leading bones, which are the same in birds as in mammals, and the more minute particulars will come as the study advances. To begin with, it will be well to learn to prepare a skeleton, and in the following lines we will try to give some idea of how it is done.

**TOOLS.**—Few will be necessary. A scalpel or sharp penknife will be your main tool in this as in skinning. A syringe is very useful but not necessary. If you get one at all select one with a fine tip. Its use will be explained later on. A fine drill or an awl is necessary for birds larger than a pigeon. A stiff tooth brush will come handy, or, if possible, two or three of different sizes. If you cannot find one stiff enough cut the bristles off about one-half their length. It is also well to have a pair of cutting pliers and a file for cutting and sharpening wire. Add to the above a bottle of glue and a needle and thread and the list is complete.

After securing a bird never attempt to make a skeleton if any of the bones are

broken. Examine carefully and you can generally tell if it is perfect. Do not begin on a small bird. A mallard is a good bird to begin with, and can be easily bought in the market. Prepare a label giving the name, date and locality and you are ready to begin.

CHAS. A. KEELER.

(To be Continued.)

### Tanning Skins With the Fur On.

"Nail the fresh skins tightly and smoothly against a door or any smooth surface, keeping the skinny side out. Next proceed with a broad-bladed blunt knife to scrape away all loose pieces of flesh and fat then rub in much chalk, and be not sparing of labor; when the chalk begins to powder and fall off, take the skin down, fill it with finely ground alum, wrap it closely together, and keep it in a dry place for two or three days at the end of that time unfold it, shake out the alum, and the work is over."

R. B. TROUSLOT, Dear Sir: I have been intending to write to you for some time, but it is the old excuse—too busy.

I have my collections arranged in a room as a dime museum. I work at taxidermy, have considerable to do, but only make enough to pay expenses. I enjoy the work.

Among the more uncommon jobs I have had, I might mention a caribou head. A moose head in the "velvet", horns about four inches long, just growing, killed June 10, at Tower, Minn.; an antelope head. Cross fox, some call it a silver gray. It is a peculiar color. Would like to have some one see it that knows. An alligator-garfish, 4 1/4 feet long, weight, 15 pounds. Bald eagle great gray owl, etc.

My museum looks pretty well. I have the birds arranged in families, have species of owls, 6 grouse, 5 hawks, waders, a pair of young great horned owls, and a pair gray squirrels, *alutic*.

I hope you are having success. I enclose 15 cents in stamps for 100 insect pins, for butterflies.

Yours forever,

E. L. BROWN.

Sir: Please send me a pair of eyes (No. 17) for an owl I have, which I would like to know the name of. There have been two killed here, within the past month; one was somewhat darker than the other; they were larger than



horned owl, and in color resemble a light Plymouth Rock rooster. Their face and feet have long white down or hair. The eyes were light yellow.

Yours,

J. J. K., Martinsville, Ind.

They are, without a doubt, white or snowy owls.

C. S. Thornton, residing near Columbus, Ind., captured a rare and unknown bird on Saturday. It measures five feet across the wings, and its plumage is snow white, interspersed with small specks. A number of crows were pursuing it, and a long and bitter fight resulted in its fall to the ground, when it was so exhausted that it was easily captured. No such bird was ever seen in that section. It is thought to be an arctic snow owl.—*Ex.*

J. A. Warrick of Sheldon, Ill., reports a white owl for which he orders eyes.

Dan. H. Bean, of Colorado Springs, Col., says: I received the little book on taxidermy I sent to you for, and have got along nicely. Have skinned several birds and am working on an antelope.

(It was Manton's handbook of Taxidermy. Price, 50 cents.)

BEDFORD, IND.

Dear Sir: Enclosed you will find a clipping which I think would be of interest to the readers of the H. N. Would like to know if there is a branch of the "Audubon Society" in this State? If there is, I would like to become a member.

I would also like to know if the hind toe of a bird corresponds to the thumb of a person?

Yours respectfully,

C. M. THORNTON.

Thanks for clippings. Do not know with reference to the Audubon Society in this State. Perhaps some of the H. N. readers can inform us. The hind toe of a bird does not correspond to the thumb of a person.

### Walking.

It is remarkable that pedestrianism has never been popular in this country. The ease and perfect freedom of this mode of traveling, its highly beneficial effects, the leisure afforded in which to study the beautiful scenery and animate nature in otherwise remote and inacces-

sible places, all mark this as one of the most profitable modes of summer recreation. To walk two hundred miles in a fortnight is an easy thing and it is infinitely more refreshing to a man of sedentary habits than the same length of time spent in lying on the sands of some beach or idling in a farm house among the hills. For a tour of two or three weeks a couple of flannel shirts, a pair of woollen stockings, slippers and the articles of the toilet carried in a pouch slung over the shoulder, will generally form a sufficient equipment, to which a light overcoat and a stout umbrella may be added. Strong and well-tried boots are essential to comfort. Heavy and complicated knapsack should be avoided; a light pouch or game bag is far less irksome and its position may be shifted at pleasure. As a rule from ten to fifteen pounds is sufficient weight to carry with comfort.

A WALKER.

### A Fable.

#### THE WORRIED CLAM.

A clam, while passing through a carpenter's shop encountered a hungry heron, and (for the wind was southerly) knowing him from the surrounding handsaws, modestly withdrew into his shell. The heron commented unfavorably upon his conduct for some time, and proposed a mutual council, but to no avail. Finally a thought struck him and he denounced the clam before heaven as a purger and a horse-thief. The indignant clam thereupon imprudently abandoned his policy of silence, but, alas! he had hardly opened his mouth when the heron swallowed him.

Moral—Second thoughts are not always best.

### Prize Stories.

The Youth's Companion maintains its reputation for publishing the best Serial and Short Stories, as well as striking stories of adventure. The next volume will contain the eight prize stories selected as the best from over 5,000 manuscripts sent in competition. The first Serial Story, to appear in January, will be "Blind Brother," in eight chapters, illustrated. Every one will want to read it. If \$1.75 is sent now, it will pay for the paper to January, 1888.

### How the Beaver Works.

When the beaver finds a tree which seems suited to his purpose, he stands erect, steadying himself by means of his tail, and cuts a groove around the trunk. This groove he gradually makes deeper and wider, until, when the tree is nearly cut off, it has very much the shape of an hour-glass. Then he goes round the tree, turns his head on one side, just as you have seen an old woodchopper do, and makes up his mind which way he wants the tree to fall. In a short time he has it down and cut in pieces a yard or so in length. These pieces are carried to the place where the dam is to be built. The beaver fastens them firmly in the ground and fills around them with small sticks, mud and stones. Perhaps you have heard that the beaver plasters the mud down with his tail; but this is said to be untrue by those who have watched him at his work. He strips off the bark from the wood he cuts, and hides it away at the bottom of the dam, weaving it in and out between the logs to strengthen the foundations. The beaver's dam is sometimes 200 or 300 yards long and ten or twelve feet thick. This house or lodge looks very much like a savage's hut, and is built with underground passages connecting with the water. These are so far below the surface that they cannot be closed with ice, and the beaver can always go out to get his food without being seen from the land.

READ carefully our "ridiculous offer" on another page and see if you can not earn for yourself one of these truly magnificent books. We have sold from our store, more than three hundred copies of these books during the past year. If you do not care for the books write for our cash commissions.

JAMESTOWN, N. Y., Nov. 10, 1886.

R. B. TROUSLOT, Esq., Valparaiso, Ind.

Dear Sir: Your favor with sample of "Ideal" pen enclosed, is at hand. It is the first pen to give entire satisfaction that I ever used. Enclosed find 50 cents for one half gross. What are your prices for India ink trays?

E. J. COBURN,

Principal Jamestown Business College.



Every person subscribing through our agents, or direct with us, will receive a premium.

If you do not state explicitly what you desire as a premium, we will take it for granted you do not care for one. To all such we extend our thanks. All premiums will be sent postpaid, on receipt of subscription price, sixty cents.

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No. 1. A quarter gross box of E. K. Isaacs, "Ideal" pens, 25 cents. These pens are made in England expressly for us, and after Prof. Isaacs' idea of what a good pen should be.

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Copy of P. P. forwarded for five cents. None free.

New premiums will be added each month.

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Each subscriber is permitted one free exchange notice, not exceeding thirty words. This can be repeated as many times as desired, at fifteen cents per issue, payable in advance.

A pair of roller, or club ice skates for bird eggs in sets. Write for particulars, enclosing list of exchanges to R. W. N., care Ed. H. N., Valparaiso, Ind.

The second volume of "Tidings from Nature," (seven numbers with Chemistry Supplement) bound in cloth, price 75 cents, for first-class, side blown eggs in sets. Identity must be perfect, or for bird skins. R. B. Trouslot, Lock Box 101, Valparaiso, Ind.

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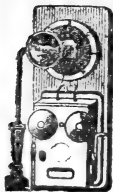
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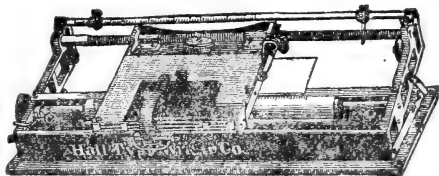
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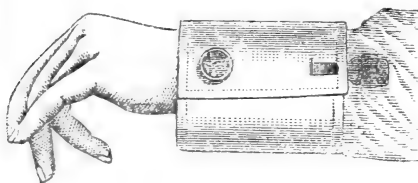
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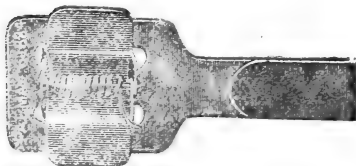
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# THE HOOSIER NATURALIST.

VOL. II. NO. 5. VALPARAISO, IND., DECEMBER, 1886.

PUBLISHED MONTHLY  
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## Hunting Bugs Under Difficulties.

It was late afternoon of a pleasant November day that my steps were arrested while crossing the plaza of San Antonio, by the familiar greeting and a hearty slap on the shoulder by my neighbor and warm friend, Will Henry. Will had recently returned from a normal school in Kentucky, and while there had become an ardent student of entomology, besides making a large collection of Coleoptera found in the immediate vicinity of the "College on the Hill."

"I'll tell you what it is, old fellow," said he, "I've made up my mind to take a big bug hunt before settling down to business, and I want you to go along."

"Me? Why, I've got lots of time to spend carousing around the country with you, hunting for bugs."

"It don't make any difference. Take the time as I intend to," replied Will, "you'll never have a better chance."

"But," protested I, "I don't know the route, and have had little or no experience with traveling on the plains. Besides, the Indians are in war paint, and it is dangerous for a small party to travel any distance from civilization."

"That's what I expected. You fellows on the frontier are always howling about Indians. With my rifle and revolver I wouldn't be frightened by half a dozen of them. Besides, you know you would enjoy the trip as well as I, and you would, no doubt, secure many valuable bird skins for your already large cabinet."

Will knew my vulnerable points and had planned his attacks accordingly, well knowing that any mention of a possibility of securing additions to my beloved cabinet would overcome all obstacles.

Continued Will: "I would have a glorious opportunity to collect beetles. You must make it with me and that's all there is of it."

I finally concluded to accompany my friend, and the following day saw us both at work providing outfits, which consisted of a good horse each, rifles, revolvers, blankets, etc.; in addition to this we employed a Mexican to accompany us, who was the owner of four pack mules.

It was not without misgivings that I had decided to accompany Will, for both of us were at that time inexperienced in camping upon the plains. Neither of us spoke the Spanish language, and should be quite at the mercy of Antonio, who was to act as our interpreter, *Arriero*, cook and guide, he being in truth the general *fuctotum* of the party.

Notwithstanding this array of objections, I had allowed Will to persuade me, and the morning of the third day after our conversation found us on the road, in good spirits, and bound to have, as we both insisted, a "bonanza trip."

The evening of the fourth day brought us to the German settlement of D'Hanis, on the Medina river.

At this place Will unfortunately fell in with a French entomologist, who was as enthusiastic at bug-catching as himself, and unknown to me, the two planned an excursion for the early part of the following day, in which to indulge in their favorite pastime.

I was very much surprised, therefore, to find in the morning that Will and the Frenchman had been out more than two hours, when I made my appearance.

Breakfast over, Antonio brought his mules, ready packed, from the corral, and after waiting an hour for Will, I gave the man instructions to proceed

slowly, and we would overtake him before he should reach Quihi, the extreme frontier settlement; if not, he should wait for us there.

It was nearly noon when Will and his friend appeared, each with their cases well filled with specimens, some of which they assured me were exceedingly rare and valuable. After bidding his French friend a hasty farewell, we set out at a good road pace, in order to overtake Antonio before he should reach our next halting place.

As we rode carelessly along, Will, whom success in the morning had rendered exceedingly good-natured, informed me that he "had succeeded in obtaining many rare specimens, whose value could not be determined, for they were worth far more than their weight in gold. Besides," said he, "for the first time in my life I can realize how Columbus must have felt when he saw before him the long-looked-for shores of the New World; the land of which he had dreamed for so many years. Ah! one feels to exclaim with the poet, 'No pent-up Uficia contracts our'—What's that?" and the next instant his face became ghastly, as he exclaimed, "Look there—Indians!"

I looked up. It was indeed true, for within twenty feet of us was a party of six mounted Indians, armed with bows and arrows. The next moment they overtook us and rode up, one on each side, while a third deliberately forced his horse between Will's and my own, leaving the remainder of the party to follow behind.

To say that I was frightened, doesn't do justice to my feelings. I was badly scared. My heart gave unmistakable notice of an intention to leap into my throat, and I couldn't have uttered a word, if it had been to save my life. A glance at Will didn't serve in the least to reassure me.

I felt that we were prisoners, and knew that some one ought to say something, although what was to be said, and who ought to say it, I didn't know.

As the Indian who rode upon my right hand was much better mounted than any of the rest of his party, I concluded he must be the chief. I therefore looked at him and nodded.

He acknowledged my nod with a grunt the significance of which I could not understand.

I ventured, however, to look at him again.

He was about fifty years of age, at

least six feet in height, with broad, square shoulders, deep chest, and long, sinewy arms. He had a large mouth, well filled with teeth of almost dazzling whiteness, a Roman nose, and high forehead. Across his face from ear to ear was daubed a broad stripe of vermilion, that gave to it a most hideous expression, made more ugly, if possible, by the naked appearance of the eyes, all the hairs from the lids and brows having been carefully plucked.

In each ear he wore three large rings, or hoops, of brass wire; but no clothing, save a breech cloth and pair of leggings. Upon his back was a large rabbit skin, stuffed with arrows, and in his hand he carried a long bow.

As soon as I had fairly looked him over, I again nodded, and as unconcernedly as possible ventilated my knowledge of Spanish by saying,—

"*Lipanos?*"

A long pause; then a grunt. After a moment, I once more ventured the interrogatory, "*Lipanos?*"

This time I received a surly "*Si.*"

One of the party now laid inquisitive hands upon Will's rifle, and another attempted a like liberty with my own, which I immediately resented by snatching the rifle away from him, and showing unmistakable signs of anger.

This action caused the chief to utter the word "*Americanos?*" in a questioning tone, to which I instantly replied "*Si, senor, Americanos.*" whereupon the old fellow extended an exceedingly dirty hand, and inquired, "*Amijos, no?*" manifesting a disposition to shake hands, and saying something in Spanish, to which I yielded a gracious "*Si senor.*" for I was more than willing under the circumstances, to be regarded as a friend.

The next moment, our bridle-reins were seized, our horses led out of the road, and we found ourselves riding over the prairie, surrounded by the entire party.

The whole thing had been done so quickly, and our surprise had been so complete, that up to this moment I had hardly comprehended the situation. Now I knew that we were prisoners in the hands of the Lipans.

At this moment, one of the escort who had been regarding with inquisitive eye the tin case in which Will carried his tomological collection, suddenly seized it, and in spite of its owner's determined resistance, wrested it from him and opened it. The sight of the many specimens, each neatly impaled upon long

slender pins, caused the entire party to utter the most expressive grunts, the chief himself so far forgetting his dignity as to join in the exclamations of wonder.

We soon reached their encampment, which consisted of about a dozen lodges near the bank of the river. Here we were ordered to dismount, and as we did so our rifles and revolvers were taken from us, and we were conducted to the largest lodge. To our surprise, we found here a Mexican woman who was able to speak English.

She informed us that we were in the camp of *Jouta-ta*, or the White Buffalo, chief of the Lipans, and that she was his wife.

At this point, the chief himself entered the lodge, and addressing the woman in the Lipan tongue, held a short conversation with her and again departed.

As soon as he was gone, she said in a low tone of voice, "The White Buffalo hates the Americans, and I know intends to do you serious harm; but I can help you to escape from him for most of our band are now out upon a hunt."

Upon hearing these words Will gave a groan so deep and dismal that I could not resist turning towards him with the remark,—

"You are not afraid of a half dozen Indians; so tell me, what shall we do?"

"Do?" ejaculated Will. "Sure enough, what *shall* we do?"

"We must make our escape," said I. There's no other way. With this woman to help us, we can do it."

We were now taken to another lodge, in a distant part of the encampment, and as we passed along I took particular notice of the camp, which consisted of only about a dozen lodges, rudely made of poles and skins, and a few cooking utensils.

There seemed to be a large number of squaws and children. The features of both men and women were large and coarse, the cheek-bones being unusually prominent. The men's faces were hideously painted in vermilion and ochre.

Our guard motioned that we were to enter one of the lodges, and there we were left to ourselves.

As soon as we were alone, I turned to Will and said, "Prisoners at last! Now how can we manage to get away?"

I never saw a more doleful face than Will turned towards me, or heard a more heart-rending groan from mortal lips than he uttered as he said, "I don't know." He was evidently powerless to

suggest, or even to comprehend anything but the fact that he was in the hands of the Lipans.

Seeing that he would be of no assistance, I crawled to the opening of the lodge and looked out.

The sentinel was standing a short distance away and saw me, but said nothing. From this I argued that as yet he had only had orders to prevent us leaving the lodge.

"Will's exclamation of 'I'd like to give 'em the whole of this,' caused me to hastily turn around. He was examining a small bottle which he held in his hand. Seeing me, he said, 'They shan't torture us, anyhow; we can use this.'"

"What is it?" inquired I, taking the bottle.

"Sulphuric ether, that I use in preparing my specimens. One drop of this on the head of an insect settles him," said Will.

"I'll take charge of this," remarked I. "It may come handy."

At last the camp became quiet. I waited, it seemed to me hours, and then crawled to the door of the lodge, to find the guard sitting over the embers of a mosquito fire, with my rifle in his lap.

Making a sign that I was cold, he motioned me to come towards the fire.

I seated myself, and after warming my hands for a few moments, drew forth my red bandana handkerchief, well saturated with ether. He grunted, and placed it to his nose.

To my surprise, he seemed pleased with the odor, for he sniffed again, and uttered a grunt. Again and again he placed it to his nose.

I motioned that he should keep it there, and in a few moments it fell from his hand. I recovered it, and held it firmly over his nose until his head dropped, his grasp upon the rifle relaxed, and he leaned over on the ground.

Placing the handkerchief over his nose and mouth, I seized the rifle, motioned Will to follow, and as quietly as possible, we made our way out of camp.

Fortunately for us, we came upon the horses which were staked near one side of the camp. We found it rather risky business going among them, but were bold with the idea of escape close at hand, and mounting our own animals, cut them loose with a knife Will had managed to retain in his possession.

We then deliberately and rapidly liberated the whole drove, cutting the *laires* a few inches from the animal's head.

We moved away, slowly at first, followed by the whole herd.

I told Will that we must manage to stampede them, which he heartily agreed to. So gradually falling to their rear, I dismounted, leaving my horse with Will.

Searching around on the ground for a few moments I felt for and found several clots of dirt, which I hurried at the almost invisible bodies of the horses to some effect, for, kicking up their heels and snorting with excitement, they were soon lost to sight.

We felt better now, as there was not much danger of being followed by the Indians.

Trusting to the stars and luck we reached D'Hanis at early dawn.

It is needless to add that Will and I returned to San Antonio, poorer in pocket but richer in experience than when we left.

Will had lost his rifle and revolver and what was of far more value to him, his precious bugs, while I had only to lament over my revolvers.

Antonio reached Quihi in safety, and after waiting for us in vain, returned to D'Hanis, where he learned of our disaster.

Will can never be induced to leave home now, without a bottle of sulphuric ether. By R. M. W.

### A Drowned Gold-fish.

"A drowned gold-fish! as if a fish could drown!" some of our readers will doubtless exclaim. Yes, a gold-fish can drown, though not exactly in the same way as you might, but we sincerely hope you never will.

I was visiting the family of a friend, lately, when one of the boys came to me, lamenting that his gold-fish had suddenly died. I answered that the water was probably old. He maintained the contrary, and led me to the globe, which was full of clear water, in which lay the dead fish.

"What did the fish do shortly before his death?" I inquired.

"He stretched his mouth open again and again at the top of the water, as though gasping for air. He did this, but it was of no use."

"Then your gold-fish was drowned," I said. The boy began to laugh, and said it was impossible. I had him bring a lighted candle, and held the globe over it so as to warm the water.

"What do you observe?" I asked.

"Nothing," he answered.

I then emptied the globe, and having filled it with fresh water from the brook, held it again over the burning light. The water was scarcely warmed at the bottom before little bubbles began to rise in the air. These bubbles consisted of oxygen gas, which the water must contain, if fishes are to live in it, as they need oxygen as much as men and animals that live in the air.

The process of breathing of fishes through gills, is like that through lungs, in so far that the carbon in the blood is exchanged for oxygen in the water. In most fishes, the gills are comb-shaped flaps of a beautiful red color, and lie in cavities of their own, to which the wearer has access. If we take a fish out of water, it suffocates, because the folds of the gills dry up, the course of the blood is interrupted, and the oxygen obtained from the water is all consumed and cannot be renewed. There are fishes which possess special water-holders for keeping the gills moist, and these can live for days out of the water; as for instance the climbing fish. Everybody knows that eels, which have a very small gill-opening, can live a long time on land.

So you see, my boy, that you must renew the water frequently, if you do not want your fishes to drown, or, if you like the word better, to suffocate, because all the oxygen in the water has been exhausted.

### The Mother Dove.

A gentleman in Hartford relates the following incident: "A young dove, unable to fly but a short distance, dropped from its nest, which is in the eaves of a barn located just outside the city, and after several excursions of the parent bird from the nest to the ground and back again, in which it showed by its actions that it desired the young one to follow, finally, seeing that it could not fly to the nest, walked along on the ground, cooing to the younger to follow, until it reached the foot of a ladder which was standing against the barn, the upper end of which was but a short distance from the nest, and hopping from round to round, actually succeeded in bringing the infant bird back to its nest."

Little girl: "Mamma, why doesn't the sea run over, if all the water flows into it?" "Nonsense, child! Don't you know it's full of sponges?"—*Lowell, New Moon.*

## A Few Words About Monkeys.

BY SANBORN TENNEY.

Although monkeys are for the most part very ugly in their appearance, they are exceedingly interesting animals, not only to children who are fond of seeing them climb, and of watching them as they pick up pennies for the showman, but also to the learned naturalist who finds them to be the animals that in their form and structure approach nearest to man.

Monkeys are animals which have each of their extremities terminated with a hand; that is the first digit (finger or toe) is a thumb, and is opposed to the other digits much in the same way as our thumb is opposed to the digits and fingers. Thus it is seen that a monkey has twice as many hands as a man, and perhaps, at first thought, it may seem as though this shows that a monkey is better furnished than man as far as regards his extremities, and that so far as hands are concerned, the monkey is in some way superior to man. But we must remember that no monkey has a hand that is so delicate in its structure, or is capable of performing so many and so varied functions as can be performed, by the perfect hand of man. Moreover it does not follow that because one pair of hands shows the possessor to have a high rank, that two pair of the same organs show the possessor to have still higher rank. On the contrary, the repetition of the same kind of organs in any animal, shows the animal to be comparatively low in the scale of animal life. So, then, the two pairs of hands on a monkey, instead of showing that he ranks high when compared with man, show most plainly that he holds a low rank as compared with him.

Monkeys live only in warm regions. They occupy just about the latitudes where palm groves flourish. In Central and South America, there are about ninety kinds, and all these, but one, are found east of the Andes. Nearly all of the American monkeys have thirty-six teeth, four more than man—and many kinds have the tail prehensile, that is, capable of being used as a grasping organ. These monkeys can put the end of their tail around the limb of a tree, and letting go their hold with their hands sustain their whole weight with their tails.

The monkeys of Africa and Asia, are larger and more ferocious than the American species. They have only

thirty-two teeth—the same number as man.

## Humming-Birds.

If two birds foraging come together, says a writer in the *Popular Science Monthly*, they usually fight; one drives the other away, and then goes on feeding as if nothing had happened. Mr. Gosse says: "If two vervain humming-birds are about the moringa tree, one will fly off and suspend himself in the air a few yards distant, the other presently shoots off to him; and then, without touching each other, they mount upward with strong, rushing wings, perhaps for five hundred feet. They then separate, and each shoots diagonally toward the ground, like a ball from a rifle, and wheeling round, comes up to the blossoms again, and sucks as if it had not moved away at all. The figure of the smaller humming-birds on the wing, their rapidity, their arrowy course, and their whole manner of flight, are entirely those of an insect; and one who has watched the flight of a large beetle, or bee, will have a very good idea of one of these tropic gems, painted against the sky." Again he says: "I once witnessed a combat between two mango humming-birds, which was prosecuted with much pertinacity, and protracted to an unusual length. They chased each other through the labyrinth of twigs and flowers till, an opportunity occurring, the one would dart with fury upon the other, and then, with a loud rustling of their wings, they would twirl together round and round, until they nearly came to earth. At length an encounter took place pretty close to me, and I perceived that the beak of the one grasped the beak of the other, and, thus fastened, both whirled round and round in their perpendicular descent, till, when very near the ground, they separated; and the one chased the other for about a hundred yards, and then returned in triumph to the tree. Sometimes they would suspend hostilities to suck a few blossoms, but mutual proximity was sure to bring tortuous and rapid evolutions, the light from their ruby necks would now and then flash to the sun with gem-like radiance. The war lasted fully an hour, and then I was called away from the post of observation."

"Can you tell me what a smile is, little maiden?" "Yes, sir; it's the whisper of a laugh."

## Some Southern Indiana Butterflies.

BY W. S. BLATCHLEY.

(Concluded.)

25. *Limenitis ursula*. Frequent. First seen on May 14, in town. Afterwards taken at various times along roadsides and in damp open woods.

26. *Limenitis disippus*. Rare. But three or four specimens were seen. They were found about the middle of July in open grounds near streams. This is a very interesting fly on account of its close resemblance to *Danaus archippus*, and because each one of its fall brood of larvæ constructs a dwelling from a leaf in which it passes the winter.

27. *Apatura celtis*. Frequent during July and August in low open woods. In the late fall, specimens were several times seen in orchards, sipping the juices from the fallen apples.

28. *Apatura clyton*. Less common than the preceding species. First seen about June 15. Frequents low grounds and clumps of willows.

## SUB-FAMILY SATYRINÆ.

29. *Debris portlandice*. First seen about the middle of July, after which it becomes rather common in low, damp woods and thickets.

30. *Neonympha eurytris*. Common from May 15, till July 1. Found along fence rows, hedges, and shady roadsides. It flies low, with a short, jerky flight, alighting every two or three yards on the grass or ground, seldom on a flower or shrub.

## SUB-FAMILY LIBYTHEINÆ.

31. *Libythea bachmanni*. Rare. Several specimens of this curious little fly with its long beak-like palpi were taken during July and August. They were found near gravel-beds and willows, along streams.

## FAMILY LYCÆNIDÆ.

## SUB-FAMILY THECLINÆ.

32. *Thecla calanus*. Common from June till September. Found in low, damp places, thickets, and along fence rows.

33. *Thecla strigosa*. Much less common than the preceding species and usually found in similar localities.

34. *Thecla poas*. Very rare. One specimen only was seen which was taken from an oleander bush in town, on August 17. It is, in my opinion the prettiest species of the family.

35. *Thecla titus*. Very rare. One specimen was taken on July 6, from the edge of a woods.

## SUB-FAMILY LYCÆNINÆ.

36. *Chrysophanus thoe*. Very rare. On the 26th of July, a single specimen was taken near a pond in an upland meadow.

37. *Chrysophanus hypophleas*. Very rare. But one was seen, which was taken in a meadow on July 2.

38. *Lycæna pseudargiolus*. Rather common from June 10, till frost. Frequents low, shady places.

39. *Lycæna comyntas*. Very common from June till September. Whenever there is a muddy spot in the road or a damp sandy place along streams, these small, blue flies may usually be found, often accompanied by *Colias philodice* and the two species of *Phyciodes*.

## FAMILY HESPERIDÆ.

40. *Ancyloxypha munitor*. This, the smallest butterfly of the United States, was common in damp, shady places from the middle of June till frost.

41. *Pamphila zabulon*. Common from June till the end of summer in thickets and along fence rows.

41a. *Pamphila zabulon* Var. *Quadranguina*. Frequently taken in company with above species.

42. *Pamphila huron*. Rare. Two or three specimens were taken during the first half of July. Found in swampy places among the coarse grasses.

43. *Pamphila otho* var. *egeremet*. Rare. A few specimens were taken in July from low grassy places.

44. *Pamphila peckius*. Rather common during June and July in shady places and along streams.

45. *Pamphila cerus*. Not common. Several were found in company with *Pamphila huron* and the next species.

46. *Pamphila metucomet*. Rather common among coarse grasses in low places.

47. *Pamphila accius* (?). One worn specimen was taken on the 3d of July, which I referred to this species, but was not certain that it belonged here. It differed substantially from any of the above.

48. *Ambyliscirtes vialis*. Common along shady roads and fence rows from June till September.

49. *Nisoniades juvenalis*. Rather common in thickets and along streams from May 15, to September.

50. *Pholisora catullus*. Common during entire summer along roads, etc.

51. *Endamus bathyllus*. Frequent along fence rows and in open fields from June till frost.

52. *Endamus tityrus*. Common among blackberry bushes, along fence rows, and

often seen in town.

53. *Endanmus lycidas*. Very rare. One specimen was taken on July 7, from a clump of briars.

Specimens of the 53 species named are in the collections belonging to Indiana University, Mr. Chas. H. Bollman, or the writer. It is to be hoped that readers of the H. N. will report species not named above which are found in their respective localities in order that a complete list of the species found in the State may be known.

Indiana University.

### Natural History Notes.

JOHN O. SNYDER.

RED SQUIRREL.—TANAGER.

While taking a stroll in the woods, one day in July, I was attracted by the cries of a bird not far from me, and on approaching the noise I discovered a red squirrel climbing a tree with a young tanager in his mouth. Noticing me, he dropped the bird, which flew a short distance away. I have known squirrels of this species to carry off young chickens.

BLACK BILLED CUCKOO.

I found a set of three black billed cuckoo eggs. One was quite fresh, the other, somewhat incubated and the third was ready to hatch. They all measure the same and I think they were all eggs of the same bird, but why was there such a difference in the state of incubation?

HAWK.—RABBIT.

During December, '86, I saw a large hawk (an uncommon thing in December) after several attempts, catch a rabbit and carry it to a tree near by, and eat it. Am certain it was a rabbit as I picked up some of the small bits of fur that were dropped under the tree, and saw the hawk in the act, when I was no more than 300 yards away.

RED-SHOULDERED HAWK.

Recently while walking through the woods, I was surprised to hear a rushing noise as if some bird had flown rapidly past. On looking around, however, I could see nothing and was about to go on, when I saw a large hawk coming through the limbs, straight for me. I ducked my head, but she did not come within two feet. She wheeled around and repeated the operation while I played my part better than before, by

picking up a stick, and when she came for the third charge, threw it at her. This frightened her away and she left the woods.

### Animal Sense of Humor.

Some prominent scientific men who have made a life study of animal habits and expression, are trying to prove that brutes possess and in some degree exhibit a certain quality very closely allied to what we call humor. Mr. Beard, a distinguished English savant, quotes many authenticated instances bearing out this view. He tells of a family who let their house furnished, leaving in it a large dog. The tenant was an old lady, who liked to sit in a particularly comfortable chair in the drawing room, but, as the dog was also very fond of this chair, she frequently found him in possession. Being rather afraid of the dog, she didn't care to drive him out, and therefore used to go to the window and call "Cats." The dog would then rush to the window and bark, and the lady would take possession of the chair. One day the dog entered the room and found the old lady in the chair. He ran to the window and barked excitedly. The lady got up to see what was the matter, and the dog instantly seated himself in the chair. Another story is told of a monkey, who was usually fastened up in a carriage-house. He would frequently undo his chain, make his way out, run along to the house, get up above the entrance door and hang upon the bell-wire, causing the bell to ring. On the door being opened, he would drop down into the lobby—an uninvited guest.—*Ex.*

### A Very Useful Sort of Rat.

Two gentlemen sat in the office of the Pittsburg Post for over an hour yesterday afternoon watching a large sized rat catching flies inside the windows of a building on the opposite side of Wood street. Its dexterity and quickness were remarkable. After capturing all the flies within its reach on one window it would suddenly disappear, but immediately reappear at another. Thus it kept up a constant raid on the winged innocents, seemingly making more captures than reams of patent fly paper would. The theory was that the rodent left a sort of saliva on the glass which attracted the flies, making them more easily caught. After gorging itself it made its way down to Vagrant Alley, where it slacked its thirst with copious draughts of water from the gutter.—*Ex.*



## Spiders.

### A CASE OF APPETITE.

In order to test what a spider could do in the way of eating, we arose by day-break one morning to supply his fine web with a fly. At first the spider did not come from his retreat, so we peeped among the leaves, and there discovered that an earwig had been caught, and was now being feasted on. The spider left the earwig, rolled up the fly, and at once returned to his "first course." This was at half-past five a. m., in September. At seven a. m. the earwig had been demolished, and the spider, after resting a little while, and probably enjoying a nap, came down to the fly, which he had finished at nine a. m. A little after nine, we supplied him with a daddy-long-legs, which was eaten by noon. At one o'clock a blow-fly was greedily seized, and with an appetite, apparently no worse for his previous indulgence, he commenced on the blow-fly. During the day, and toward the evening, a great many small green flies, or what are popularly termed midges, had been caught in the web; of these we counted one hundred and twenty, all dead and fast prisoners in the spider's net. Soon after dark, provided with a lantern, we went to examine whether the spider was suffering at all from indigestion, or in any other way from his previous meals; instead, however, of being thus affected, he was employed in rolling up together the little green midges which he then took to his retreat and ate. This process he repeated, carrying up the lots in little detachments, until the whole web was eaten, for the web and its contents were bundled up together. A slight rest of about an hour was followed by the most industrious web-making process, and before daylight, another web was ready to be used in the same way. Taking the relative size of the spider and of the creatures it ate, and applying this to a man, it would be somewhat as follows: At daybreak, a small alligator was eaten; at seven a. m., a lamb; at nine a. m., a young cameleopard; at one o'clock, a sheep; and during the night, one hundred and twenty larks. This, we believe, would be a very fair allowance for one man during twenty-four hours; and could we find one gifted with such an appetite and such a digestion, we can readily comprehend how he might spin five miles of web without killing himself, provided he possessed the necessary

machinery.

A writer in Harper's Bazar, says: "We do not believe there is much affection wasted upon the spider; nevertheless it is a very useful creature and should not be despised. Its specific office is to prevent the dangerous multiplication of winged insects. Entrapping flies is its forte, and it has been remarked that if spiders should strike, and for a single month in the summer refuse to set their traps, we could hardly defend ourselves against armies of noxious insects that would take possession of our dwellings. Nevertheless there may be such a thing as too many spiders in the world—a possibility against which nature has provided. When spiders are thickest and busiest catching flies, a large, peculiar looking fly appears upon the stage of action, and adroitly seizes the spiders wherever found. These spiders are stowed away in secret cells to be food for young flies. Thus there is compensation all around."

### THE SPIDER AS AN ENGINEER.

In January, 1730, Mr. Robert Stephenson, of Newcastle-on-Tyne, England, showed a friend calling upon him, a tumbler-glass with its contents. In this glass prison was a little scarlet-colored spider, whose beauty, with its bright yellow nest, on a sprig of laurustinus, had induced a young lady to pluck it from the bush where growing. When brought into the house, it was laid on the mantle-piece, and secured by the glass being placed over it.

In the course of a very short time this most wonderful little engineer contrived to accomplish the herculean task of raising the sprig of laurustinus, a weight several hundred times greater than itself, to the upper part of the glass, and attaching it there so firmly, that after thirty-six years, it is still suspended where it was hung by the spider.

It is believed that this kind of spider always deposits its nest upon trees, and never upon the ground; and such may have been the reason for its wonderful effort to raise the branch to the upper part of the glass.

It may still be seen dead and dry, hanging by one of its threads from the top of its prison house with its little nest upon a leaf of the laurustinus.

Behold its skill and its extraordinary powers in providing from its own body the cords for raising such a weight, and fastening it to the smooth glass. All these are indeed "a feeble folk," yet they are exceedingly wise.



### Winter Work.

BY L. E. HOOD.

As winter approaches, the young collector is apt to consider the season's collecting at an end and will begin to classify his insects and arrange for exchanges. This is well enough in a way, but there is no reason for postponing your collecting, for many good species can be secured in the cold weather.

Of course, species will be fewer and hard to find, but if you are careful you can enlarge your collection by searching among fallen leaves and in moss, when the snow will permit, under the bark and in the wood of partly dead trees, while boards and trunks of fallen trees often shelter beetles.

The sieve may be used to advantage in securing the small species found in moss and among the leaves, and at all times of the year is one of the most practical appliances known to the collector of *Coleoptera*, and can be easily made by tying a V shaped bag of fine woven cloth to a sieve with moderately coarse meshes; by putting in a few handfuls of leaves and shaking the sieve as a cook will in sifting flour, you can readily dislodge any small beetle that may adhere. I believe this sieve with the umbrella, sweep net and small light net to be indispensable to practical collecting, and I urge the liberal use of both sweep or beating net and sieve.

During the winter months you can arrange and label your collection, and if you have kept a note book, which you should always do, you can make an index or synopsis of your notes of appearances and characteristics of the insects found, and if you have these notes under dates properly kept, they will be of great value to you in after years.

If you have handled your insects carefully and classified them, you will find no difficulty in exchanging your duplicates for species new to you.

Beetles common in New England may be rare in Illinois, and species common there may be rare with you. By exchanging you can add valuable species and at the same time increase your knowledge of the distribution of the insect fauna of our country.

It is preferable for a collector to devote his time to one order, unless he is a professional student, for if you wish to make the study of entomology a pleasant auxiliary to business cares, and wish to gain both pleasant knowledge and delightful recreation, you will receive more satisfaction from one order diligently collected

than from a more extensive collection. A collection gains in interest as it increases, and as the more common species are secured you must rely more and more on rare forms and species from other localities, and a constant acquisition of rare and interesting beetles will be a source of constant delight; yet it is well, perhaps, to keep any interesting butterflies or other insects you may find, and exchange them when you have a chance, for beetles.

You will find ample material for study and work in any one single order of American insects, and unless your time and means are unlimited you will find it a life's work to nearly complete your order.

One of the greatest difficulties in the path of the amateur will be to properly classify his collections. Only a few species of the *Coleoptera* can be readily named from popular books, and it is a difficult matter to form a good working library, owing to the majority of the descriptions of *Coleopterous* insects being published in various transactions and other publications of societies; but with the help of more experienced entomologists, who are ever ready to give valuable aid, and with the books easily procured, the student will be able to gain much knowledge, and as time goes on and he becomes better acquainted with his collection, he will be surprised to find what now seems an almost impossibility, becoming an easy and interesting study.—  
*Ornithologist and Oologist.*

### Mesmerizing a Rooster.

An experiment, which it may amuse the boys to repeat, has been described by several correspondents to a popular science journal. Place a rooster upon a table or board, and, holding his wings down close to his sides, let a second person bend down his head until his beak touches the board on which he lies, and draw a line of white chalk straight out from the point of his beak. This done, the bird may be released from all restraint, and he will not stir so much as a feather. "Nay, further," writes one, "you may clap your hands or shout close to him without rousing him from his lethargy, from which, however he will ultimately recover." Another experimenter writes: "I have seen a row of fowls rendered quite senseless by drawing a chalk-line (beginning at the top of the beak) slowly across a table, and I have myself successfully performed the experiment. The birds are simply mesmerized."

### Carnivorous Orioles.

I had three young Baltimore orioles from their nest, but feared that I should lose them, for they refused every variety of food I offered them. At that time I was collecting birds zealously, and was skinning several of them daily. As I was preparing a specimen, one of the young orioles was sitting on my table, very stupid indeed, head drawn in, not life enough to utter a sound, thoroughly dumpy. Without knowing why, I picked up a bit of the bird's flesh and offered it to him. To my great surprise he swallowed on the instant, and roused himself at once. That one mouthful had done him so much good that he wanted more. I took him on my finger and fed him piece after piece, till his throat was swelled out like an over-fed chicken's crop, and I feared to give him more. He settled himself down with great satisfaction, and went to sleep. I fed his brother and sister in the same way; and from that time till they were fully grown they had not a mouthful of food except the flesh of the birds I was skinning. Their eagerness for the meat was extreme. They learned the bird-skinning business to perfection. As soon as they saw me prepared for work, they all gathered about the specimen, ravenous for meat, and I almost always commenced to skin my bird, with an oriole sitting on each hand, and one on the specimen itself, and with three little heads down over the abdomen, where the first cut was to be made (they knew the point well enough); and the instant I opened the skin, in went three bills, digging and tearing fiercely for their food, and continuing at it as I continued my work, till their appetites were satisfied.

I do not know that this fact concerning the Baltimore oriole has ever been reported. I recollect mentioning it to Mr. Audubon, but it was after his account of the species had been published.—*W. O. Ayres, in Science.*

### The Rabbit in the Moon.

The heathen think that the figure we see in the moon is a rabbit pounding rice, and the story tells how he came there. A fox, a monkey and a rabbit once lived together in a forest very happily in one dwelling. One day an old man, toil-worn, weary and hungry, came to their home where they gladly welcomed him. After a little while he said to them: "My children, in my home, a great ways from

here, I heard that you, although from different families, lived happily together; so I have come to see if this was true. I am tired and hungry. Have you nothing that you can get to refresh me?"

They all exclaimed "We will try."

They went in different directions to see what they could find for the old man's supper. The fox went to the river and caught a fish; the monkey climbed a tree and brought some of the coconuts; but the little rabbit returned without anything. The old man said to the rabbit:

"My child, I am very sorry that while your friends can each do something for the old and weary, you do not care to do anything."

The little rabbit looked very sad, and returning to his companions, asked them to help him gather some sticks and dry leaves to make a fire. When this was done he turned to the old man and said:

"Kind sir, I am a poor feeble animal, who can not fish like the fox, nor climb trees like the monkey. After looking everywhere, I could find nothing worthy of your acceptance, but to show you that I am willing to do something, I will give myself."

With that he threw himself into the fire, and was roasted for the old man's supper. The old man was one of the gods in disguise, and to commemorate the self-devotion of the rabbit, he placed him in the moon, where he should never be forgotten. The next time you see the full moon I want you to look at it, and see if you can fancy that the dark figure in it looks like a rabbit standing upon its hind legs with a stick in its fore-paw pounding rice in a wooden bowl.

### Immortality of Animals.

Many good and learned men have believed and taught that animals have an immortality as well as men. Among them were Theodore Parker, John Wesley, Jeremy Taylor, Coleridge, Lamartine, Agassiz and many others less known to fame. That they have thoughts, language, intelligence, affection and gratitude, as well as the emotions of anger, revenge and remorse, is certain. Where, then, is the boundary line between mind and soul, in animals whose natures are so much like those of man? And what reason have we to assert that they are not like him, immortal? Is it all unreasonable that in that other life, to which this is but a portal through which all animated nature must pass, we shall meet and

welcome the animals we have loved here; our old familiar friends, the companions of our childhood and later years—Bobbin, Brindle, Tray and Tabby—and the sweet-voiced canary, too, that beguiled with his melodious notes many a weary hour away? And why not? Can we imagine a place more unhomelike and desolate, as a land entirely bereft of animal life? Where no faithful dog will welcome his master's step; no song of birds ripple the ambient waves of that upper air; no brave steed wait to bear his master over the rolling hills of the beautiful "Summer-land"; no white flocks deck the green hillside, and no lowing kine browse beneath the spreading branches of the evergreen trees of that peaceful landscape? Ah, no! Let us rather trust that in that better land these faithful friends may be compensated for the wrongs they suffered here, and that the pen of poet and philanthropist no longer be called upon to chronicle the barbarous deeds of men upon them."

### Brute Intelligence.

That animals, on certain occasions, exhibit reasoning powers, is illustrated by the Austin (Nevada) *Reveille*, which says: "A poor little mouse, whose home is under the floor of the *Reveille* office, came out this morning to forage for his breakfast. Seeing some printing ink, which had been spilled on the floor, he thought that would make a good meal, and went for it. After nibbling a little while he became frightened at a noise made by those watching him, and started to run back to his hole; but the ink being of a sticky nature, he found his feet held fast to the floor and himself unable to move, whereupon he set up a doleful squeak. In a few minutes along came a larger mouse, probably his father, who took in the situation at a glance, and at once commenced an attempt to release his diminutive relative. He stopped carefully over the ink till he came to the little mouse, and laying hold of the back of its neck with his teeth, tugged away till he released it. The affair was witnessed by several persons, who were so interested in the novel sight that they offered no molestation to the animal."

"For drunkenness drink cold water; for health, rise early; to be happy, be honest; to please all, mind your own business.

### How to Pet Canaries.

Says a writer on canaries: "In this way I answer the question how I had such luck with birds. Simply by allowing the birds to attend to their own affairs, and by letting them understand that their mistress would never harm them. Also, by accustoming them to plenty of light, and air and company, rather than, as commended in books, keeping the cage in a dark room, for fear of frightening the birds. Make just half the fuss directed in bird books over the matter, and you will have double the success in raising birds. Never give them sugar, but all the red pepper they will eat. It is the best thing for them. And if your bird sings hoarse at any time, put a piece of fat salt pork in the cage, and see how the little fellow will enjoy it, and listen for the result. Give him flax-seed once in a while, and if he appear dumpy occasionally give a diet of bread and water, with red pepper sprinkled in. Open the cage door and give your pets the freedom of the room; soon they will come at your call and fly to meet you, whenever your voice is heard. I had one who came regularly to my desk, as I sat writing, and disputed, with fluttering wings and open beak, my humble right to the inkstand. And when I had reasoned him out of his mistaken notion, he would perch himself on my pen handle (no comfortable proceeding for me), and watched gravely as I wrote. I have many a time also discovered him in the act of eating off the corners of my paper, even to the title of my article. Another thought nothing of trotting about on my head and shoulders, and even hopping under my chin and nestling against my throat. He would take his bath as I held the cup in my hand, and coolly dry himself on my head. Another would fly down or up stairs to me, whenever I called him, and many a time, when I have been out, he has welcomed my return by flying down the stairs and singing at the top of his voice all the while, until, at last, perched on my shoulder, he would accompany me to my room."

### Queer Owls.

A California paper says that a couple of owls have been caught in Churchill County, Nevada, which have hair on their faces like a monkey, and eyes and eyebrows like a human being. The body of one is speckled like a trout, and that of the other, is yellow.

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Publishers wishing to discontinue their papers, can have their lists filled by us, at very low rates.

VALPARAISO, IND., DECEMBER, 1886.

A prospectus from Science Co., has recently been received, announcing the appearance in January, of the "Swiss Cross", which will be the official organ of all the Agassiz Association Chapters, and will be edited by their President, H. H. Ballard. The subscription price will be \$1.50. See clubbing rates under "The Naturalist for Nothing."

"MAN proposes, God disposes." We are now suffering from an unfulfilled promise, all for the lack of printers. Whether the printers left because we had made the promise, or because, having been in one office a long time, they had become uneasy and restless and felt it beneath them to remain longer, we cannot say. We only know they are gone and that we are "sticking type" after a fashion, till others can be obtained.

SOME of the readers of the NATURALIST will, no doubt, recollect reading our remarks on a work on "Taxidermy," by Prof. Oliver Davie. We recently had the pleasure of examining several of the plates calculated for this new book. These plates, forty in number, will be by Theodore Jasper, twenty of which are already finished. The number and character of the engravings will, of course, make the work a little expensive. Yet, judging from the drawings, (and there isn't much use for text) this work on

taxidermy will be as far ahead of any existing treatise on that subject as "Audubon's Birds of America" would stand, with no competitors. We hope to see the work completed in the near future.

THE other day December "Penman's Art Journal" stole quietly into our office and lay on the table unobserved for several moments, when, recognizing its graceful form we hastily tore off the wrapper. The first page contained a well written and neatly illustrated article on penmanship by the editor himself, D. T. Ames. Stopping just a moment to admire the fine engraving of the good-looking "C. C." penmanship teacher, on the next page, we noticed over his left shoulder, "The 'What is it?' Movement", which sparkled with ready wit and silent fun. Its origin was easily accounted for as we read "Earnestly yours, E. K. Isaacs." at the bottom. We were now in a peculiarly happy mood, so, when we read Prickett's comical biography of Henry W. Flickinger,

We "jest laid back, at last,  
An' we laft-an' laft—  
Till we knowed our lung  
Wuz jest about give in,—  
"An' then,"  
well, but what's the use, just send ten cents to Ed. "Penman's Art Journal," N. Y. City, and enjoy what we enjoyed.

WE are still making strenuous efforts to increase the circulation of the HOOSIER NATURALIST, as will be seen by the heading, "Premium to Every Subscriber," in the fore part of this issue. Read that article carefully and you will find our premiums are not worthless articles, costing nothing, and advertised at a ridiculously high figure, but, on the contrary, are all first class, and quoted at regular rates.

We have thousands of testimonials extolling the superiority of the "Ideal" pens, many of these from some of the best penmen in the world.

Not only does everybody write, but everybody also wants to write and punctuate correctly, and the little work, "Punctuation and Capitalization" will do more for you than many vastly more expensive works.

To our taxidermal friends we offer Hurst's artificial glass eyes. The superiority of this make over all others is well known.

And in like manner, each premium we offer will be found first class in every respect. Parties desiring to form clubs for the NATURALIST will find ample commissions are allowed, by referring to the fore part of this magazine.

SUBSCRIPTIONS may begin at any time, we can, however, supply all back numbers of Vol. II.

We have already heard from a large number who will undertake to raise clubs, and we wish them success.

EVERY new subscriber desiring a premium must make a selection at the time. It must be understood, in all cases, that club raisers are *already subscribers*.

If perchance you have not received our premium list, or desire several to distribute among your friends, drop us a postal card and they will be sent at once.

PLEASE remember you can save money on nearly every paper published in America by subscribing through us. Let us know what you want and we will submit our figures.

JOHN M. HUBBARD, of Lake Village, N. H., sends us "The Stamp Dealers of the World," a neat little pamphlet, which he claims to be "a complete list of all dealers in postage and revenue stamps in the world." Price ten cents.

We have received "The Introductory Postage Stamp Album for Beginners," Fourth Edition. Published by W. C. Parker, 604 W. Gray St., Elmira, N. Y. It is a neat, colored paper covered album, of 36 pages, which will accommodate over 500 stamps. Price 15 cents.

HEREAFTER all matter in the NATURALIST will be set solid, that is, omitting the thin leads between the lines; thus, as the NATURALIST will have the usual number of pages, the reading matter will be considerably increased. To this we presume our subscribers will not object.

OUR correspondence is assuming proportions almost beyond our individual ability to dispose of and we ask your indulgence should you not always receive a prompt reply. We would also request all to make their communications as brief as possible, and should you desire a reply, on matter of interest to yourself only, a stamp must be enclosed.

#### ANNOUNCEMENT.

Mr. W. R. Lighton, a practical geologist, will conduct a Geological Department in the HOOSIER NATURALIST and will contribute thereto a series of papers on "Economic Geology," the first of which will appear in the January issue. We are confident these papers will be interesting to all of our readers, whether geologically inclined or not.

EMANUEL SENN, editor of the *Milwaukee Naturalist*, writes us that he will discontinue, and requests same announced in our columns, yet, as he says nothing to that effect in the *Milwaukee Naturalist*, just received, we are at a loss what to believe.

#### Received.

D. T. Ames, 205 Broadway, N. Y., has favored us with a set of his Copy Slips, which should be in the hands of all young people whose penmanship is not up to the standard. E. K. Isaacs, Principal Penmanship Department, Northern Indiana Normal School, Valparaiso, Ind., says: "If the learner who uses the Ames Copy Slips does not acquire a scientific knowledge of the subject, and thus be induced to practice systematically and faithfully until a good handwriting is acquired, it is not the fault of the Copy Slips." They are sold for 50 cents, or given as a premium with a year's subscription to The Penman's Art Journal, of which Mr. Ames is editor and proprietor.

#### Sixtieth Year.

The *Youth's Companion* celebrates this year its sixtieth anniversary. It might well be named the *Universal Companion*, so widely is it read and so wisely adapted to all ages. Its contributors are the most noted writers of this country and of Europe. Among them are W. D. Howells, J. T. Trowbridge, Prof. Huxley, The Duke of Argyll, The Marquis of Lorne and Princess Louise, Archdeacon Farrar, C. A. Stephens, Admiral David Porter, Lieut. Schwatka, and many others. We do not wonder that the *Companion*, with such contributors, has nearly 400,000 subscribers. It costs but \$1.75 per year.

#### A Crab and its Burden.

Mr. W. August Carter, of the South Kensington aquarium, has lately received from the Kentish coast a crab upon whose carapace is attached a pyramid of petrified sand, having an elevation of 6 inches and a base measuring 2 inches in circumference. The crustacean was captured alive among rocks, where it had evidently remained in a stationary position for a protracted period, judging from the extent of the ravages made by marine animalculæ. In spite of its burden, the creature is capable of moving with tolerable freedom, which is extraordinary, considering the weight of the former and the size of the crab, which is only  $3\frac{1}{2}$  inches in length.—*The Naturalist's World*.



## AND TAXIDERMISTRY.

### A Few Hints on Preparing Skeletons of Birds.

BY CHAS. A. KEELER.

(Concluded.)

When you are ready to begin work, cut the skin from the vent to the base of the bill below and pull the skin off from everything but the wings. These had better be picked first or at least the large quills removed. When the skin is completely removed cut the flesh from the breast-bone, pick the pelvis and vertebrae as clean as possible and cut the flesh from the legs and wings. The internal organs may now be completely removed and the bird be held under a faucet of running water to clean off the blood. Now detach the cervical or neck vertebrae and with a long needle and thread string the neck on it like beads. These can be tied like a necklace and you are in no danger of losing any of the bones. Remove what flesh you can from the skull and detach the legs and wings and you will be ready to boil the bird. It is well to run a thread through the nostrils, and tie the legs, wing, body, head and neck together, and then put them in boiling water with the thread hanging over the edge. In this way you avoid fishing out each bone separately. Boil five, ten, fifteen or twenty minutes according to the size of the bird. When the flesh can be scraped off the bird is cooked. Now comes the most tedious job of all. Every particle of flesh must be removed with the knife and brushes. Cut off as much as possible and then brush. If you have patience you can remove every particle of it. The skull is the most difficult thing of all and great care must be exercised with small

birds not to break any bones. When you have removed all the flesh the brain still remains. A piece of wire with cotton on the end will be very useful for removing it. Insert the wire into the brain where the neck begins and by poking it around inside a good deal of it will be removed. Then fill with water and shake; by keeping this up the brains may be entirely removed. A syringe filled with water may be put into the brain cavity and the water forced out. The brains will ooze out around it.

You are now ready to mount the bird. First cut a block of wood for a stand and drill two holes the proper distance apart for the feet. Now drill a hole in the bottom of the tarsus and run a wire into it, fastening the other end to the stand. Do the same with the other leg. If the bird is a large one the joint at the tarsus must be wired, in a small bird glued. This will apply to the knee joint as well. When you have both legs standing firmly take the body and rest between the legs. It may be fastened like the joints of the legs. Now run a wire through the detached vertebrae and push one end through the stationary vertebrae the entire length. The other end must go into the skull and be pushed firmly into the bill. Now fasten on the wings in their proper place and have them standing out. They may be held in that position by fine wire bound around them and attached to the vertebrae. The bird is now mounted and nothing remains but to bleach it. It must be left in the sun for a month or two and it will then be white and suitable for the cabinet. If the bird does not stand steadily a wire may run from the base of the skull directly down into the stand to steady it. Though these directions are not complete they may give some notion of how a skeleton is prepared, and the main reliance must be in practice.

In a recent letter from Prof. Oliver Davie, he says:

"Since Nov. 13th. I have received no less than six snowy owls taken in different parts of Ohio and I have records of four others being taken which I did not get. I do not, however, want the earth."

Later, he says:

"Add another snowy owl to my list and I now have records of six that I did not get."

Mr. R. B. Trouslot, Dear sir:—Enclosed you will find money for back numbers of H. N. I like your paper very much and consider it just the thing for young naturalists. I am collecting cotacala, we have quite a variety of them here. I would like to correspond with other collectors of same. Anything I can do here for you I will do with great pleasure. Expect to commence on taxidermy sometime this winter.

Yours Truly

C. A. Haberer,  
2321 West Chestnut St., Louisville, Ky.

Mr. Editor, I would like to know through the columns of H. N., the scientific name of jack snipe and pheasant.  
Chas. Cook.

(*Gallinago wilsoni* and probably *Bonasa umbella*, ruffed grouse. Ed.)

Valparaiso, Ind., Ed. H. N. Dear sir:—

On reading an article on the tenacity of life in insects, in the last number of the Hoosier Naturalist, I was prompted to relate an incident coming under my observation in the summer of 1885. I was attending school at Delaware, Ohio. It was what is commonly called a "locust year". I had caught half a dozen or more "locusts" and confined them in a small, close box. On going home during vacation, having learned there were no "locusts" in that vicinity, though only sixty miles away, I concluded I would take these with me. I had been home about a week before I again thought of the "locusts." When I went to look at them I found they were still alive. At first I felt somewhat ashamed for having kept them confined so long, and was about to set them free; but curiosity made me hard hearted. Since I had kept the "locusts" so long, I determined to see how long they would live without food. I looked at them quite frequently, for about five weeks, when, one morning, I found them dead.  
W. B. Nyhart.

Lawrence, Kan. Ed. H. N.,—There has been quite a number of red crossbills here lately, feeding upon the seeds of frozen apples. They seem to be quite tame, allowing me to approach quite close before flying. Will you please tell me whether the hairy woodpecker has a crest of scarlet on the back of the head?

Respectfully, Albert Ganett.

## A Chat With Some of Our Exchanges.

We have recently received a number of new exchanges, while several of our old ones have ceased to appear, and it is but natural we should desire to know the "thusness" of this. Now some time back we received a spirited, spicy and entertaining Vol. I, No. 1, the *Golden State Scientist*, edited by E. M. Haight. We hope Haight's conscience will give him serious trouble until he places our H. N. on his regular exchange list.

Then there is the *Insect World*,—quite unsteady in its habits. We tried to brace it up with a subscription the other day, but somehow it didn't have any effect. We haven't seen its pleasant face for a long, long time.

Recently we tried to effect an exchange with the *Humane Journal*, of Chicago, without avail. It seems there is an editress, or secretaryess, or any way, a good-looking lady connected with this excellent journal, and a little (?) bird whispered to us the other day that the *Naturalist* was very favorably received, even though "it would improve its looks by being trimmed". We only hope if that good lady reads this, she will use her influence to get the H. N. placed on the *Humane Journal's* Exchange list, and we perhaps will get the H. N. trimmed.

We can't begin to speak of all the good papers we receive, but there are several we have intended to mention long before this. *School and Home* of St. Louis comes regularly every two weeks, and is always replete with interesting matter for the little people, the big boys and girls and grown folks as well.

*The New Moon* of Lowell, Mass., is an excellent literary magazine. Its editorials are always good, and the funny departments will surely please.

*The Southern Cultivator and Dixie Farmer*, is, just at present, "conspicuous by its absence". This is one of the largest agricultural magazines it has been our good fortune to receive. When it came we always took pleasure in reading it, and although several similar Journals have recently appeared on our table, we greatly miss this one, coming as it did, from a land where joyous spring reigns throughout the year.

*The Century*, is a new and valuable exchange recently obtained. This magazine is so extensively read and so well known it hardly needs our wee bit of a voice to extol its many merits. "Lincoln's Life," by his two private secretaries, is but one of the many interesting features.



### How the Bullfinch is Taught to Sing.

Boys and girls are not the only little folk who attend singing classes, as you shall know when you hear about the piping bullfinch.

In shape and size this bullfinch is somewhat like the sparrows in our city parks, but he has a very different head. The sparrow, you know, has a trim quick, little pate of his own. Not so the bullfinch. His is a clumsy affair—in fact, he has a sort of “bull” head and neck; so, you see, he is well named. Besides, his body is nearly as black as a coal, and his throat as red as if the coal were on fire. He is not naturally a singer, nor is he half so clever as our American mocking-bird. In fact, he is rather stupid, but he is willing to learn; and so it happens that if you persevere long enough you can teach him to sing a tune.

The country people of Germany have found this out. There the peasants take great delight in training bullfinches. Their pupils, not being very bright, as I said before, are stupidly hopping about their cages, when suddenly they hear a tune played upon a violin. They prick up their ears,—or would do so if they could,—and begin to listen, quite unconscious that that very same violin has been playing that very same tune for about a week without their noticing it. But it is something to catch their attention. Day after day, for months, the patient teacher goes over and over the same tune to the listening birds until human listeners begin to wonder which will get crazy first, the bullfinch or the player. But by and by the birds begin to pick up the air, piping the simple parts at first, and taking up note after note, until, at last, they know the whole thing by heart. Sometimes a rustic father spends half his time all winter teaching one bird, and the children look on with the greatest interest. Or a boy will undertake the task, and when he at last succeeds, his sisters look upon him as the most wonderful fellow in the world; and they cry in real earnest when the wonderful boy carries his pupil to town to be sold; for sold these bullfinches are sure to be as soon as they are taught, or else exhibited by their owners as street singers. Sometimes bird-teachers are known far and wide for their skill and success, and at Freiburg, in Baden, and small villages on the outskirts of the Black Forest, bullfinch-training is practiced as a regular business. In such cases a small hurdy-gurdy

or “bird organ” is used, as being less difficult and tiresome than the violin; and, instead of training one bird, they teach the same tune to a class of ten or a dozen.

Generally, the birds are sent to London or Paris, where, if they have learned their lessons thoroughly, they are bought by rich folk, put into beautiful cages and treated as pets, whilst other bullfinches, having trifled away their school-days and only half learned their tune, live a vagrant life around the markets, belonging to nobody, and picking up their dinner as best they can.

### Big Collecting.

Mr. Herbert H. Smith has recently returned from Brazil with a large collection of natural history specimens, accumulated during five and a half years devoted to collecting in the interior of Brazil. Although Mr. Smith gave his attention especially to insects, of which he brought home some 400,000 specimens, he made collections of much importance in other departments of natural history. His collection of birds, numbering about 450 species and 7000 specimens, was made chiefly in the Province of Matto Grosso, on the headwaters of the Paraguay River, a region hitherto little explored. It is doubtless the largest collection ever brought by one person from so limited an area in South America; and besides throwing much light on the ornithology of this particular district, it must contain some novelties. Mr. Smith's collections are now at the American Museum of Natural History, New York, where it is to be hoped a larger part of them will remain. The birds have been placed in the hands of Mr. J. A. Allen for study and determination, who will in due time publish an annotated list of the species. —*The Auk*.

### Exterminate the English Sparrows.

If the Audubon Society will capture and stuff the English sparrows of this country it will make for itself a fame almost as far-reaching as that of Audubon himself, remarks the *Louisville Courier-Journal*. This would be not only destroying the birds, but preserving them, so that the original object of the society would be sufficiently carried out.—*Ex.*



# Condensed Catalogue.

The following is a condensed list of books published by JOHN B. ALDEN, New York, and for sale by much valuable information, may be had for 4 cents.

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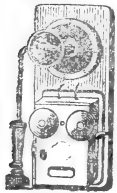
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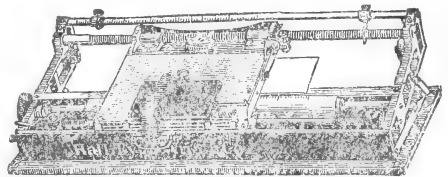
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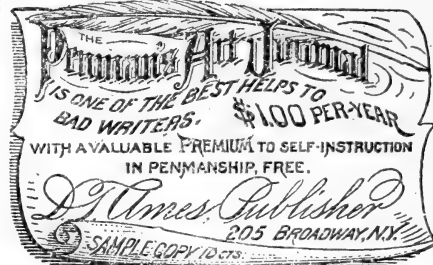
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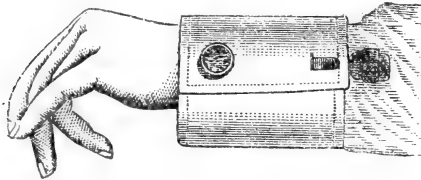
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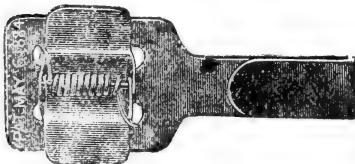
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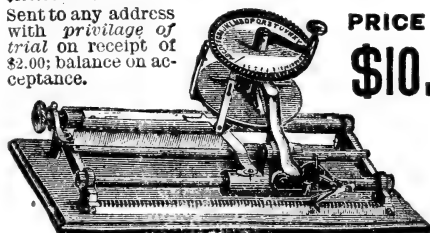
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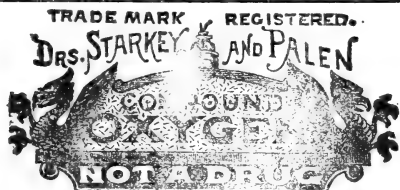
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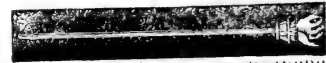
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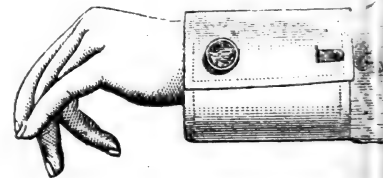
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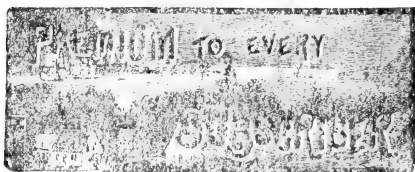
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# THE HOOSIER NATURALIST.

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## Contributed.

BX E. L. R., WESTVILLE.

If we wish to study Nature's plans  
We need not go to foreign lands,  
For all around our homes,  
Lie her illustrated tomes.

Their pages are before us spread  
And tell of living, and of dead.  
In the broken rocks we find  
Animal forms of extinct kind.

In the air and on the ground  
Object lessons may be found.  
We must learn from Nature's knee  
As did the learned Agassiz.

## A Red-Headed Family.

"Ce'tingly I ken, ce'tingly, seh," said my Cracker host, taking down his long flint-lock rifle from over the cabin door and slipping his frowzy head through the suspension-strap of his powder-horn and bullet-pouch. "Ce'tingly, seh, I ken cyarry ye ter wha' them air birds had their nestis las' yer."

I had passed the night in the cabin, and now as I recall the experience to mind, there comes the grateful fragrance of pine wood to emphasize the memory. Corn "pones" and broiled chicken, fried bacon and sweet potatoes, strong coffee and scrambled eggs—a breakfast, indeed, to half persuade one that a Cracker is a *bon vivant*—had just been eaten. I was standing outside the cabin on the rude door-step. Far off through the thin pine woods to the eastward, where the sun was beginning to flash, a herd of "scrub" cattle were formed into a wide skirmish line of browsers, led by an old cow, whose melancholy bell clanged in time to her desultory movements. Near by, to the westward, lay one of those great gloomy swamps, so common in Southeastern Georgia, so repellant and yet so fascinat-

ing, so full of interest to the naturalist, and yet so little explored. The perfume of yellow jasmine was in the air, along with those indescribable woodsy odors which almost evade the sense of smell, and yet so pleasingly impress it. A rivulet, slow, narrow, and deep, passed near the front of the cabin, with a faint, dreamy murmur and crept darkling into the swamp between dense brakes of cane, and bay-bushes.

"Ye-as, seh, I ken mek er bee-line to that air ole pine snag. Hit taint more'n er half er mile out yender," continued my host and volunteer guide, as we climbed the little worm-fence that inclosed the house; "but I allus called 'em air birds woodcocks; didn't know 'at they hed any other name; allus thut 'at a Peckwood wer' a leetle, tinty, stripedy feller; never hyeard er them air big ole woodcocks a bein' called Peckwoods."

He led and I followed into the damp, moss-scented shadows of the swamp, under cypress and live-oak and through slender fringes of cane. We floundered across the coffee-colored stream, the water cooling my india-rubber wading-boots above the knees, climbed over great walls of fallen tree-holes, crept under low-hanging festoons of wild vines, and at length found ourselves wading rather more than ankle-deep in one of those shallow cypress lakes of which the larger part of the Okefenokee region is formed. I thought it a very long half-mile before we reached a small tussock whereon grew, in the midst of a dense underbrush thicket, some enormous pine trees.

"Ther'," said the guide, "thet air snag air the one. Sorter on tertother side ye'll see the hole, 'bout twenty foot up. Kem yer, I'll show hit ter ye."

The "snag" was a stump some fifty feet tall, darkless, smooth, almost as white as

chalk, the decaying remnant of what had once been the grandest pine on the tussock.

"Hello, yer'! Hit's ben to work some more sence I wer' yer' las' time. Hit air done dug another hole!"

As he spoke he pointed indicatively, with his long, knotty forefinger. I looked and saw two large round cavities, not unlike immense auger-holes, running darkly into the polished surface of the stump, one about six feet below the other; the lower twenty-five feet above the ground. Surely it was no very striking picture, this bare, weather-whitened column, with its splintered top and its two orifices, and yet I do not think it was a weakness for me to feel a thrill of delight as I gazed at it. How long and how diligently I had fought the home of *Campophilus principalis*, the great king of the red-headed family, and at last I stood before its door!

At my request, the kind Cracker now left me alone to prosecute my observations.

"Be in ter dinner?" he inquired as he turned to go.

"No; supper," I responded.

"Well, tek cyare ev yerself," and off he went into the thickest part of the cypress.

I waited awhile for the solitude to regain its equilibrium after the slashing tread of my friend had passed out of hearing; then I stole softly to the stump, and tapped on it with the handle of my knife. This I repeated several times. *Campophilus* was not at home, for if he had been I should have seen a long, strong, ivory-white beak thrust out of the hole up there, followed by a great red-crested head turned sidewise so as to let fall upon me the glint of an iris unequalled by that of any other bird in the world. He had gone out early, I should have to wait and watch; but first I satisfied myself by a simple method that my watching would probably not be in vain. A little examination of the ground at the base of the stump showed me a quantity of fresh wood-fragments, not unlike very coarse saw-dust scattered over the surface. This assured me that one of the excavations above was a new one, and that a nest was either building or had been finished but a short while. So I hastily hid myself on a log in a clump of bushes, distant from the stump about fifty feet, whence I could plainly see the holes.

One who has never been out alone in a Southern swamp can have no fair understanding of its loneliness, solemnity and funereal sadness of effect. Even in the

first gush of Spring—it was now about the sixth of April—I felt the weight of something like eternity in the air—not the eternity of the future but the eternity of the past. Everything around me appeared old, sleepy, and musty, despite the fresh buds, tassels, and flower-spikes. What can express dreariness so effectively as the long moss of those damp woods? I imagined that the few little birds I saw flitting here and there in the tree tops were not so noisy and joyous as they would be when, a month later, their northward migration should bring them into our greening northern woods. As the sun mounted, however, a cheerful twitter ran with the gentle breeze through the bay thickets and magnolia clumps, and I recognized a number of familiar voices; then suddenly the gavel of *Campophilus* sounded sharp and strong a quarter-mile away. A few measured raps, followed by a rattling drum-call, a space of silence rimmed with receding echoes, and then a trumpet-note, high, full, vigorous, almost startling, cut the air with a sort of broad-sword sweep. Again the long-roll answered, from a point nearer me, by two or three hammer-like raps on the resonant branch of some dead cypress-tree. The king and queen were coming to their palace. I waited patiently, knowing that it was far beyond my power to hurry their movements. It was not long before one of the birds, with a rapid cackling that made the wood rattle, came over my head, and went straight to the stump, where it lit, just below the lower hole, clinging gracefully to the trunk. It was a superb specimen—the female, and I suspected that she had come to leave an egg. I could have killed her easily with the little sixteen-gauge breech-loader at my side, but I would not have done the act for all the stuffed birds in the country. I had come as a visitor to this palace, with the hope of making the acquaintance I had so long desired, and not as an assassin. She was quite unaware of me, and so behaved naturally, her large gold-amber eyes glaring with that wild sincerity of expression seen in the eyes of but few savage things.

After a little while the male came bounding through the air, with that vigorous galloping flight common to all our woodpeckers, and lit on a fragmentary projection at the top of the stump. He showed larger than his mate, and his aspect was more fierce, almost savage. The green-black feathers near his shoulders, the snow-white lines down his neck, and the tall red crest on his head, all shone

with great brilliancy, whilst his ivory beak gleamed like a dagger. He soon settled for me a question which had long been in my mind. With two or three light preliminary taps on a hard heart-pine splinter, he proceeded to beat the regular woodpecker drum-call—that long rolling rattle made familiar to us all by the common red-head (*Melanerpes erythrocephalus*) and our other smaller woodpeckers. This peculiar call is not, in my opinion, the result of elasticity or springiness in the wood upon which it is performed, but is effected by a rapid, spasmodic motion of the bird's head, imparted by a voluntary muscular action. I have seen the common Red-head make a soundless call on a fence-stake where the decaying wood was scarcely hard enough to prevent the full entrance of his beak. His head went through the same rapid vibration, but no sound accompanied the performance. Still, it is resonance in the wood that the bird desires, and it keeps trying until a good sounding-board is found.

It was very satisfying to me when the superb King of the Woodpeckers—*pic noir à bec blanc*, as the great French naturalist named it—went over the call, time after time, with grand effect, letting go, between trials, one or two of his triumphant trumpet-notes. Hitherto I had not seen the *Campephilus* do this, though I had often heard what I supposed to be the call. As I crouched in my hiding-place and furtively watched the proceedings, I remember comparing the birds and their dwelling to some half-savage lord and lady and their isolated castle of medieval days. A twelfth-century bandit nobleman might have gloriied in trigging himself in such apparel as my ivory-billed woodpecker wore. What a perfect athlete he appeared to be, as he braced himself for an effort which was to generate a force sufficient to hurl his heavy head and beak back and forth at a speed of about twenty-eight strokes to the second!

All of our woodpeckers, pure and simple—that is, all of the species in which the woodpecker character has been preserved almost unmodified—have exceedingly muscular heads and strikingly constructed necks; their beaks are nearly straight, wedge-shaped, fluted or ribbed on the upper mandible, and their nostrils are protected by hairy or feathery tufts. Their legs are strangely short in appearance, but are exactly adapted to their need, and their tail-feathers are tipped with stiff points. These features are all fully developed in the *Campephilus prin-*

*cipalis*, the bill especially showing a size, strength and symmetrical beauty truly wonderful.

The stiff pointed tail-feathers of the woodpecker serve the bird a turn which I have never seen noted by any ornithologist. When the bird must strike a hard blow with its bill, it does not depend solely upon its neck and head; but, bracing the points of its tail-feathers against the tree, and rising to the full length of its short, powerful legs, and drawing back its body, head, and neck to the farthest extent, it dashes its bill home with all the force of its entire bodily weight and muscle. I have seen the ivory-bill, striking thus, burst off from almost flinty-hard trees fragments of wood half so large as my hand; and once in the Cherokee hills of Georgia I watched a pileated woodpecker (*Hylotomus pileatus*) dig a hole to the very heart of an exceedingly tough, green, mountain hickory tree, in order to reach a nest of winged ants. The point of ingress of the insects was a small hole in a punk knot; but the bird, by hopping down the tree tail-foremost and listening, located the nest about five feet below, and there it proceeded to bore through the gnarled, cross-grained wood to the hollow.

Of all our wild American birds, I have studied no other one which combines all of the elements of wildness so perfectly in its character as does the ivory-billed woodpecker. I have no trace whatever in its nature of what may be called a tamable tendency. Savage liberty is a prerequisite of its existence, and its home is the depths of the woods, remotest from the activities of civilized man. It is a rare bird, even in the most favorable regions, and it is almost impossible to get specimens of its eggs. Indeed, I doubt if there are a dozen cabinets in all the world containing these eggs; but they are almost exactly similar in size, color and shape to those of *Hylotomus pileatus*, the only difference being that the latter are, upon close examination, found to be a little shorter, and, as I have imagined, a shade less semi-transparent porcelain-white, if I may so express it.

The visit of my birds to their home in the stump lasted nearly two hours. The female went into and out of the hole several times before she finally settled herself, as I suppose, on her nest. When she came forth at the end of thirty or forty minutes, she appeared exceedingly happy, cackling in a low, harsh, but rather wheedling voice, and evidently anxious to attract the attention of the

male, who in return treated her in lofty contempt. To him the question of a new egg was not worth considering. But when she at last turned away from him, and mounting into the air, galloped off into a solemn gloom of the cypress wood, he followed her, trumpeting at the top of his voice.

Day after day I returned to my hiding-place to renew my observation, and excepting a visitation of mosquitoes now and then, nothing occurred to mar my enjoyment. As the weather grew warmer the flowers and leaves came on apace, and the swamp became a vast wilderness of perfume and contrasting colors. Bird songs from migrating warblers, vireos, finches and other happy sojourners for a day (or mayhap they were all nesting there, I cannot say, for I had larger fish to fry), shook the wide silence into sudden resonance.

At last, one morning, my woodpeckers discovered me in my hiding-place; and that was the end of all intimacy between us. Thenceforth my observations were few and at a long distance. No amount of cunning could serve me any turn. Go as early as I might, and hide as securely as I could, those great yellow eyes quickly espied me, and then there would be a rapid and long flight away into the thickest and most difficult part of the swamp.

I confess that it was with no little debate that I reached the determination that it was my duty to rob that nest in the interest of knowledge. It was the first opportunity I ever had to examine an occupied nest of the *Campephilus principalis*, and I felt that it was scarcely probable that I should ever again be favored with such a chance. With the aid of my Cracker host, I erected a rude ladder and climbed up to the hole. It was almost exactly circular, and nearly five inches in diameter. With a little axe I began breaking and hacking away the crust of hard outer wood. The cavity descended with a slightly spiral course, widening a little as it proceeded. I had followed it nearly five feet when I found a place where it was contracted again, and immediately below was a sudden expansion, at the bottom of which was the nest. Five beautiful pure white eggs of the finest old-china appearance, delicate, almost transparent, exceedingly fragile, and, to the eyes of a collector, vastly valuable, lay in a shallow bowl of fine chips. But in breaking away the last piece of wood-crust, I jerked it a little too hard, and those much coveted prizes rolled out and fell to the ground. Of course they

were "hopelessly crushed," and my feelings with them. I would willingly have fallen in their stead, if the risk could have saved the eggs.—*Maurice Thompson's By-Ways and Bird-Notes.*

### Affection for Offspring.

One of the strongest feelings of animals is that of affection for their offspring; indeed, so intense is this impulse among the greater number, that it may be said to exceed the care which they employ for their own preservation, or the indulgence of their own appetites. Among insects, and some other of the inferior tribes, the care and solicitude of providing for their young engrosses the better half of their existence; for they labor during the prime of life to provide a comfortable nest and proper food for their offspring, which they are never destined to see, death overtaking them before they can enjoy the pleasure of beholding their future family.

Many timid animals that shrink from danger, while they are single and alone, become bold and pugnacious when surrounded by their young. Thus, the domestic hen will face any danger, and encounter any foe, in order to protect her brood of chickens; and the lark and the linnet will allow themselves to be taken in their nest, rather than desert the young which lie protected under their wings. Even those animals whose general nature is characterized by savage and unrelenting fierceness, are gentle, and tender, and affectionate to their young. The grim lion fondles, with paternal softness, his playful cubs; and the savage bear has been known to interpose her own body between the deadly musket and her helpless offspring. But this feeling in animals lasts only for a season. After they have nourished and brought up their young, these go out from their parents—all further ties between them are broken up, and they know each other no more.

How different is this from human connections! The fond mother watches over the long and helpless period of infancy, instills into early childhood lessons of wisdom and virtue, and feels her hopes and affections increase with every year that brings an increase of reason. The child, on its part, returns the care and affection of its parents, and, when old age and second childhood comes upon them, the children then feel it their greatest happiness to repay, in acts of kindness and attention, the debt of gratitude which is justly due. How greatly superior appears man's nature to that of the mere brute!

## REMARKABLE INSECTS.

**Peculiarities of One of the Most Curious of Entomological Creatures.**

Certain elongate insects, popularly known as "walking-sticks," or "walking leaves," according as they lack or possess wings, have long been reckoned as among the most curious of entomological creatures. Mimicking to a remarkable degree, as their popular names imply, the twigs and leaves upon which they dwell, these insects find their most congenial home in the tropics, where some of the species attain to over a foot in length, exclusive of the legs. It is also found in various sections of our own land.

Owing to its slender, long-legged, slow-moving characteristics, it has been properly called the "walking-stick," "stick-bug," "specter;" while in some localities it is known as "prairie alligator," "devil's horse," and other odd cognomens, generally indicative of its appearance and of a superstition which is quite prevalent, but most unfounded, that it is poisonous and can sting or bite.

The colors of the adult are quite variable. During early life, they are invariably of a uniform pale yellowish-green color; and as they have a habit, in their young days, of keeping near the ground, this, coupled with a great readiness to drop whenever disturbed, serves to protect them from observation. With age, the green color gives way to various shades of gray and brown. In this way we find great correspondence with its surroundings. While the vegetation is green, the specters are green, also; when the foliage turns in autumn, they change color correspondingly, and when the foliage is stripped, they so closely resemble, in both appearance and color, the twigs upon which they rest—the habit of stretching out the front legs and feelers greatly enhancing the resemblance—that when they are few in numbers it is difficult to recognize them.—*Ex.*

**The Home of the "Rain Crow."**

BY GEORGE TICKNOR WHITE.

Although the yellow-billed cuckoo (*Coccyzus americanus*) extends its travels even to the frost-shaven cedar groves of Canada, it finds no section in which it so delights to dwell as the hill-country of North Georgia, which is the home, not only of many of the shyest and rarest of American birds, but among the Cohuttahs and other mountains, still linger, despite the advance of civilization, the bear, wolf, panther, deer, wild cat, and other wild and fierce animals, all of which wander as freely in the remote regions of the mountain fastness, as when the proud Cherokee looked down upon the land he called his own.

The home of the "rain crow," as the yellow-bill is called by the rustics, is thus spoken of by Maurice Thompson:

"No other section of our country affords such a pleasing variety of landscape features, from the quiet repose of level river-fed valleys to the grandeur of rocky peaks thrown up against the bluest sky in the world."

This region, once the home of the powerful Cherokees, is covered with cotton plantations and dotted with smiling hamlets, and bustling cities. Here the cuckoo comes up with the warm wind from the South early in April and builds it a nest in some of the haw-groves which bound the many woodland glades. I have seen cuckoos here in midwinter, and I am inclined to believe they remain in some remote thickets the entire year.

Of the yellow-billed cuckoo much might be written, but I will close this paper with a few words on the cuckoo's "song," that strange, half-comical, half-gloomy call which echoes so dolefully through the dim depths of the leafy groves when that heavy stillness which precedes a rain-storm, settles over the dusky woods. There is never the sound of happiness in the bird's voice, but its harsh, rasping notes seem the voice of some evil spirit calling from the shore of an unknown country.

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**An Intelligent Dog.**

Cartersville, Ga., is proud of Joe, a dog of superior intelligence. He has been known to sieze an ear of corn, carry it to a rat hole, shell off a few kernels, back off out of sight and then pounce upon the rat thus enticed to destruction.



### Our Winter Birds.

BY J. W. JACOBS, WAYNESBURG, PENN.

If the English sparrows of this county were exterminated no one would mourn their loss, as we have scores of other birds, more brilliant in plumage and, in fact, having a better voice, and making things more cheerful.

A good illustration, of our feathered songsters is the cardinal grosbeak, a very common summer and winter resident. It has a pleasing note and from morning until night, its melodious voice may be heard. Many persons capture and cage these birds for pets. The cardinal grosbeak begins to build its nest about the middle of April. If the nest is touched while it is being constructed the old birds will at once desert it. The eggs are from three to five in number, varying from greenish cream to white, spotted and blotched with brown, slate, blue and light reddish brown, chiefly about the larger end, but sometimes almost concealing the back ground.

A number of song sparrows remain here through the winter. The song sparrow, ground bird or ground sparrow, as it is frequently called, begins to build its nest about the middle of April, placing it on the ground near some small bush, in a brush heap, or along the banks of some stream. The eggs are usually five, sometimes only three or four, light bluish green, almost completely covered with blocks and streaks of brown, drab, slate and reddish brown, and measure about .80 by .60.

The tufted titmouse is a common resident. Comes near houses in the winter and often into them at some broken window. I know where several of the birds breed but have been unable to find eggs in the nests. It is said that one of these birds will eat, during the winter, a peck of seeds of various kinds.

Black capped chickadee are very common both in winter and summer. They commence early in April to excavate holes in fence posts and decayed timbers and branches of trees. The nest is composed of moss, feathers, fine hairs and cottony substances. The eggs are from five to eight; rosy white, speckled over the entire surface with reddish brown spots, and measure about .58 by .47.

The black snow bird is a common winter resident, going in companies of a score or more.

The american goldfinch is a common resident. The thistle or lettuce bird begins to build its nest about the last of

June, and fresh eggs can be found from that date until the last of August. They are bluish white, usually unspotted; have heard of them being found covered with small black spots. They measure about .65 by .50.

The bluejay is common in winter, builds its nest early in April, large and bulky like a crow's. Lays from three to five eggs.

The crow is an abundant resident. Builds early in April, laying five eggs, light bluish green, almost completely covered with large spots of drab and blue.

The red tailed hawk is a common resident. They begin to build, if the weather is fit, about the last of March, the nest is large and bulky, measuring three or four feet in diameter. The eggs are from two to four in number, in color, dirty white or bluish, blotched with large spots of brown and umber. Size 2.40 to 2.60 long by 1.85 to 2.00 broad.

Meadow larks are seen during the winter. Morning doves are occasionally seen in winter. Sparrow hawks are common both in winter and summer. Occasionally a kingfisher appears during winter. Yellow-shafted flickers are common in winter. A red-headed woodpecker is occasionally seen during the winter. The screech owl is a common resident and breeds early in the spring. The great horned owl (hoot owl) is a common resident, and breeds from the first of March to the last of April. The american woodcock is a resident and breeds from March to the last of April. There are also several species of woodpeckers, ducks and sparrows, which are to be found here in winter.

### Attacked by a Menatee.

This terrible (?) creature is found in Florida. The following brief sketch will give our readers some idea of its prodigious strength.

Both the Indian and the St. Lucie rivers are filled with a coarse rank grass, which takes root at a depth of twenty or thirty feet, and rises to the surface. It is called menatee grass because it is eaten by the wonderful menatee or 'sea-cow'. Florida is the only spot on the North American continent where this animal is found. It is amphibious and herbivorous, and weighs from 800 to 2,000 pounds. It suckles its young, and has a head like a seal, a nose like a cow, flippers like a sea-lion, and a tail like a whale. Of immense



strength, when at bay it can knock a boat to pieces. The body is powerfully built. The bones are like iron, and the ribs are short, thick and heavy, and are white as ivory. The manatee is very shy. Once in a while one is shot. Several have been netted. One was captured a year ago and taken to Savannah alive, but it died within a few months. The meat is eaten by the people living on the upper Indian river, and is said to be sweet and very palatable. Indians are extremely fond of it.

While on the way up from Lake Worth two men had a narrow escape from a manatee. They were sailing at twilight in one of the sluggish and tortuous lagoons leading to the Everglades. While rounding an abrupt curve in a mangrove swamp, they startled a manatee. The monster was sleeping under some low branches. Thinking itself cornered, it made a rush for the boat. Fortunately the water was deep and it slipped under the bow. Its back, however, scraped the keel, and the craft was lifted from the water. The pale-faced men baled her out and continued their journey.

Years ago an Indian river hunter was caught in a similar fix. The sky was overcast and the night very dark. A frightened manatee shattered his boat and she went to the bottom. The hunter caught the boughs of the overhanging mangroves and tried to pull himself ashore, but was barred by a net-work of roots. All night long he clung to the mangroves. Clouds of mosquitos and sand-flies surrounded him, and he suffered almost intolerable tortures. At daylight he managed to get into the swamp, and after incredible hardships, worked his way to a point opposite Jupiter light, where he made himself heard and was rescued.

### A Fish Fast in a Bottle.

A Baltimore oysterman the other day fished up a bottle to which a large bunch of bivalves had grown. Inside the bottle was a fish too large to get out of its mouth. It is supposed that the fish went into the bottle and either liked its quarters so well that it tarried too long, or before it could find its way out had grown so large as to nearly fill the bottle. The bottled fish will be sent to the Smithsonian institution as a curiosity.—*Chicago Times.*

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### Essay in Natural History.

BY LITTLE JOHNNY.

#### THE EPHALENT.

My Uncle Ned he says he bets I can't write a discription of the bony fidy travler, and I dont think I can, too, less its the ephalent, which I never seen cep-tin' it was travlin with a circus. Then it has a lot of waggins a follerin', and music a-plane, and my mother she won't let me go to the sho, but Billy went, and the necks day he hurt hisself jumpin' over two chairs.

The ephalent is the biggest animile but the wale, wich isnt a anamile, but a fish, though my Sunday sooch book says its a created bein'. The ephalent has a trunk like a tale, but thikker. Its more like a long nose, but looser and curlier.

Once there was a taler wich prickt a ephalent's trunk with his needle. Then the ephalent went and got it full of dirty water, and put it in the taler's window, and blode it all over the taler, but my uncle Ned says it aint so. He says the taler let the sash down real quick on the ephalent's trunk, and held it fass wile he sode up the end, and the ephalent had to swaller the dirty water and was sick abed.

They is two kinds of ephalents: one's feets has five tose, but the other's feets has only three tose. The five tose one is the best, 'cause more like men. They all has ears like table covers, but not figgered. There skins is made too big for 'em and has to have tucks in it, and there teeth is called tucks too, one on both sides of their trunks. Billy says a mau in the circus put his head in the ephalent's mouth, wich I think was safe enough, seein' it's teeth is outside. I bet nobody but that men ever see a ephalent's tung. Oxes tungs is nice biled.

Their legs is like trees, with bark, but not like dog's bark, wich isn't real bark, but is called that 'cause when the dog does it he wants you to leave.

Uncle Ned he says that once in Injy they was an ephalent come about a man's bunglo, whic is house there, and made trax in the night. In the mornin' the man he see 'em, and he said to his wife, says he, Saray, if them Smith girls comes a-visitin' here without their shoes you tell 'em they better go back to England where the snaix is kept in a bottle at the chemist, for he thought, that man did, it was their trax.

Could you not secure a few subscribers to the NATURALIST?

### EXTINCT ANIMALS.

#### **The Bones of Enormous Beasts Exhumed in Spokane County, W. T.**

W. M. Lee, the well-known fruit grower of Tacoma, gives the particulars of a wonderful discovery of bones of extinct animals in Washington Territory, which will attract the attention of the students of natural history and archæology all over the world. In a letter from Spokane Falls, he says: The face of the whole Territory shows unmistakable evidence of great volcanic upheavals. On my trip through Spokane County I stopped at Latah, and in conversation with Mr. Coplen, of that place, regarding the volcanic formation of that section, he informed me that he had examined some large bones of great antiquity. Accompanied by Mr. Coplen I went to the spring where the relics were dug out. It is located on a low strip of springy prairie. The excavation around the spring is twelve or fifteen feet deep, and thirty or forty feet across. The bones were covered by several distinct layers.

The first layer was ancient peat, then gravel, then volcanic ashes, then a layer of coarse peat. From this spring were taken no less than nine mammoths, or elephants, of different sizes, the remains of a cave bear, and hyenas, extinct birds and a sea turtle. Mr. Coplen kindly presented me with some specimens of these relics. The dimensions of some of the bones of the larger mammoths were wonderful to look at. The horns were a sort of tusk, and protruded from the head. By dropping the head in the act of feeding the circle of the horns that extended below the jaws rested on the ground, giving support to the head, which is estimated to have weighed a ton.

The horns were worn away several inches deep at the bottom of the turn or half circle, indicating constant use by rubbing on the ground or rocks. One of these horns was ten feet and one inch long and twenty-four inches in circumference. It weighed 145 pounds.

One of the tusks measured twelve feet and nine inches in length and twenty-seven inches round. It weighed 295 pounds. The jaw weighed sixty-three pounds. The molar teeth weighed eighteen pounds each. Some of the ribs were eight feet long. The pelvic arch was six feet across, and an ordinary man could walk erect through this opening. The huge and antique monster was eighteen feet and six inches high, and was estimated to weigh twenty tons.

Just imagine far back in the misty by-gones of antiquity, probably before the appearance of man upon the earth, that Washington Territory was the home of these monstrous animals that roamed over the great prairies, traversed the Columbia river, and made the genial climes of Puget Sound their haunts in winter. It matters not what the theories may be in regard to these embedded bones of such huge proportions; why so many of them were piled together in these springy places; what period or age the animals lived; at what time the great change took place which made them disappear from the continent; whether they first made their appearance in this part of America and whether or not it was then a tropical climate.—*Tacoma (W. T.) Daily Ledger.*

### Curious Experiments.

Mr. Graber has lately made some curious observations upon the effect of light upon eyeless animals, a report of which appears in the proceedings of the Vienna Academy. He put a number of earth-worms into a box, which was provided with an aperture at one side, through which light was allowed ingress. The result of many experiments showed that the worms sought the darkest part of the temporary prison, and that at least two-fifths of their number shunned the light. Experimenting with rays of different colors by means of stained glass, he found that the worms exhibited a marked preference for red light.—*Science.*

## WHITE-FOOTED MICE.

### How These Little Mammals Rearrange the Abandoned Nests of Birds.

Often, as early in autumn as the first of October, the abandoned nests of cat-birds and cardinal grosbeaks, and to some extent those of the brown and song thrushes, will be found very frequently to be tenanted by those beautiful little mammals, the white-footed mice (*Hesperomys leucopus*).

While the fact of such situations being chosen by these mice, for their winter quarters, has been long known, I am not aware that observation has been carried beyond this point; and I recently endeavored to determine, first, to what extent these old birds' nests are remodeled; and again, whether or not some of them may not be constructed *de novo*, the builders using the abandoned home of a bird for the exterior of the new structure, and removing it, bit by bit, from its original site.

In the months of October and November, 1884, I examined a series of forty-two nests, all of which were above the ground, and occupied by mice. All were strikingly different from any nest of a bird, such as is found in so exposed a position; none being open above nor having the materials for linings such as our thrushes and larger finches are accustomed to use.

Of the series thirty-one were placed in dense tangles of *Smilax rotundifolia*, or green-brier. None were near the upper or outer edges of the thicket, but usually about one-third the distance from its uppermost surface, and midway from side to side: for instance: if the growth was ten feet high and six or eight in width, the home of the mouse would be at an elevation of between six and seven feet; and it had therefore a protecting growth of thorny smilax of three to four feet in extent above it, and nearly the same upon each side.

This was a very uniform feature of the series examined, and, if the mice merely occupy old nests of birds, indicates a uniformity in the matter of their locating by the birds, of which I

was not aware, and which I am inclined to doubt.

Again, the smilax was so very dense or closely intertwined, in the majority of instances, that it was clearly impossible for a bird as large as a robin or grosbeak to have penetrated it with that celerity of movement necessary to escape the impetuous charge of a hawk. It is, I think, far more probable that the continuous growth of the green-brier, after the birds abandoned the nest, made it in many cases inaccessible.—*Dr. Charles C. Abbott, in Popular Science Monthly.*

## The Mountain and the Squirrel.

The Mountain and the Squirrel  
Had a quarrel.  
And the former called the latter "Little  
Bun replied— Prig."  
"You are doubtless very big!  
But all sorts of things and weather  
Must be taken in together  
To make up a year.  
And a sphere:  
And I think it no disgrace  
To occupy my place.  
If I'm not so large as you,  
You are not so small as I.  
And not half so spry.  
I'll not deny you make  
A very pretty squirrel track.  
Talents differ—all is well and wisely put:  
If I can not carry forests on my back,  
Neither can you crack a nut."  
—*Ralph Waldo Emerson.*

## Bird Migration.

The British Association's committee to observe the migration of birds has learned that birds on their arrival at the British Isles, as a rule, avoid high cliffs, and prefer to enter river valleys, whence they spread gradually over the area embraced by the river's tributaries.—*The Popular Science Monthly.*

## Lizards' Fondness for Music.

"The common lizards of the West Indies are extremely fond of music. In a listening attitude, they will approach the open window of a room in which music is played, coming nearer and nearer with heads elevated, intently listening."

# GEOLOGY.

This department is conducted by W. R. Lighton, Leavenworth, Kan. All inquiries and communications under this head should be addressed to him.

## Economical Geology.

### FIRST PAPER—COAL.

It is hardly probable that Americans can be in the future aroused to such a pitch of reckless enthusiasm, or enthusiastic recklessness, as they have been in the past upon questions pertaining to our mineral resources; yet there are many thousands of dollars spent annually in drilling and boring and digging through the earth in the search for treasure which has no existence, and by far the greater part of this loss could be avoided by the possession of a little knowledge upon geological subjects. So in this series of papers I intend to make a few decidedly practical remarks upon the topic, Economical Geology, and shall begin now by speaking of the methods of determining the actual and comparative value of our coals. In this brief paper it would not be possible to give any extensive information as to the means of deciding whether coal exists in any particular place. To be able to arrive at a decision upon this point it is necessary to have some acquaintance with the strata which are usually associated with coal, and also of the fossils occurring in these strata. I am supposing now that the coal has been found and that you wish to determine upon its value. The question of the thickness of vein necessary to successful working of course depends upon its situation. In some places a vein of less than two feet in thickness can be worked to advantage while in other places it is necessary to have a vein of three or four feet to make successful operation possible.

The first point to determine is the percentage of foreign matter which the coal contains, for this is the most important consideration of all in deciding upon its value as fuel. This analysis is made by reducing the specimen to ashes, after carefully weighing it, and then by weighing the ashes that remain, ascertain the percentage which the ashes constitute of the original weight. Of course all mineral matter which is incombustible and foreign will remain after burning. The better qualities of coal contain from three to eight percent of ash, and it may be of value when containing even a larger amount, but the proportion should never exceed fifteen percent. As the foreign

matter increases coal passes gradually into what are called Bituminous Shales. Some of these containing a large amount of bituminous matter and a small percent of fixed carbon are used as fuel in some places but are not marketable.

Next we are to discover the percentage of water contained in the coal. It must be seen that the less water there is in coal the greater is its value, for if there is a great amount of moisture present it requires a proportionately large amount of heat to vaporize it and drive it off, and this heat is lost. Weigh the specimen and subject it to say 225 degrees of heat, so as to drive out all the water and still not burn the coal. Now weigh it again and determine the percentage as in the first instance. Coals fresh from the mine or those having been kept in a place where the weather has free access commonly contain ten to fifteen percent of moisture, but when kept in dry places the amount should not exceed from three to five percent.

The last thing to decide upon is the relative proportion of bituminous matter and fixed carbon. This is done by heating the coal in a retort, after all the water has been driven off as above directed. Heat to a degree sufficient to fuse out all of the bituminous matter, which is volatile and will be driven off before the carbon will be altered. The carbon will be left in the form of coke. Weigh this and the loss in weight will be the percentage of bituminous matter when compared to the original weight of the specimen. Also compare the weight of the coke to the weight of the specimen as first obtained to ascertain its percentage. The better grades of Anthracite coal contain from 75 to 90 percent of fixed carbon and in some cases less than five percent of bituminous matter. Our bituminous coals have usually about 50 percent of fixed carbon but this varies.

W. R. Lighton.

## The Destruction of Our Birds.

The destruction of ibises and herons in Florida is awakening popular indignation for there are no birds in the world more poetic and beautiful. The pink curlew is disappearing from the Florida lakes, and the colonies of the wonderfully beautiful white heron are being everywhere destroyed. The extinction of these birds would be a national loss. A writer in a recent paper says of the destruction of the most beautiful American birds: "Twenty to thirty years ago it was not an unusual sight to see even the scarlet

anager, a bright red bird with black wings and tail, flitting from tree to tree in the breast of our cities like a fiery meteor in the sunlight and to find their nests, built very lightly of straws and similar material, on the horizontal limbs of our shade-trees. But they were killed off and driven back to the woods long before the advent of bird millinery as a fashion. They were indeed a 'shining mark' and everybody wanted a specimen, or thought they did, until at the present time the scarlet tanager is really a very rare bird throughout the New England States.

The Baltimore oriole, so named because the colors of the bird, black and yellow, resembled those of Lord Baltimore, has almost met the same fate, as it has done duty in ornamenting thousands of ladies' bonnets within the past five years. Four years ago this bird was quite plenty on the elms of Boston and suburbs. The hanging nests, made of hemp, old twine, etc., were quite common. But the past season showed a great change. These birds have been shot so ruthlessly, both while here and at the south and during the migration, that hardly a pair could be found during the breeding season of 1886. The ragged nests are occasionally seen, belonging to years gone by, as it sometimes takes the storms of many winters to beat them to the ground. If the different societies organized to protect our native birds do their whole duty these beautifully plumaged insectivorous birds will soon become common once more."—*Youth's Companion*.

### Tame Crow's Tricks.

Tame crows have the reputation of making themselves more amusing—or provoking—than useful. They are busy birds, always "up to something," and comical in proportion as they are not pretty. The *Hartford Times* relates some of the exploits of "Jack," one of a pair of crows that were brought up by a family living in a neighboring town during the summer, and kept until the time came to exchange the country for the city residence.

One marked trait of character that has grown with their growth is a disposition to mischief. One of the two has been much more tame than the other. "Jack," as the family pet is called, has developed the thieving and mischievous traits of all the crow tribe. He will enter at an open window and steal whatever he can carry off, particularly if it shines or glitters. In this way he stole a young lady's gold thimble, which is not likely to be found

again; and he came near taking a lady's watch, which was rescued just in time, after he had got it out of doors. Warned by experience, the family have to keep the windows shut, if they leave any room for the time unguarded.

The tendency of both crows was to hide the things they had stolen. These they would so deftly conceal, and in such queer places, that there seemed little hope of getting back anything after the crows had once made off with it. Jack, having hidden some stolen article very carefully under a heap of leaves at the foot of a tree, flew away apparently well satisfied with that particular piece of work. He had been watched, and in his absence the stolen property was recovered and the leaves replaced as he had left them. When he came back, he went to that spot and cautiously examined the situation—carefully removing the leaves. Discovering his loss, he exhibited a comical state of astonishment and bewilderment.

Cocking his head on one side, he surveyed the scene in a reflective mood. Then he reexamined the spot where his stolen property had been hidden. Then he went back a rod or two and took a careful survey of the tree and its surroundings, apparently to make sure that he had got the right tree. Having satisfied himself on this point, and once more assured himself that the plunder was no longer where he had hidden it, he stood for some time in an apparent state of deep bewilderment, or a kind of brown study—his head frequently turned in a knowing way on one side. At last he gave it up, made an examination all round the tree, and then left the matter finally as a conundrum that was evidently too deep for him.

He is a knowing fowl, and, like his elfin cousin, the raven, celebrated by Edgar Poe, he knows how to come and knock gently on the window-pane when he wants to get into the house. He knows too, just about how much water is to be provided for his bath; for he is very regular and punctual about taking his morning bath, and after his mistress has come out with one pitcher of water and poured it in the pan, Jack always waits for the arrival of the second pitcherful. Then he jumps in and has a jolly time of it, flopping and flapping about in the water till he gets "wet as a drowned rat," then he gets off, a dripping and bedraggled object, to some secure spot where he can dry himself in the sun.—*Science Series, Rutland, Vt.*

# The Hoosier Naturalist.

Published Monthly, at 60 cents a year.  
To Foreign Countries, 75 cents a year.

R. B. TROUSLOT,  
EDITOR AND PROPRIETOR.  
R. B. TROUSLOT & CO., PUBLISHERS.

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VALPARAISO, IND., JANUARY 1887.

OF course we wish all our subscribers, as well as every one else, a Happy New Year.

THE wave of white owls has passed and we hear of them no more in this section.

F. M. GILHAM, of Oakland, Cal., reports that the "Indians in the vicinity of Carson are making preparations for a grand deer rodeo."

THE readers of the H. N. are requested to examine several new "ads" which appear in this issue, as well as all of the old ones.

NOTWITHSTANDING various hindrances we are catching up, and will be able soon to announce for the H. N. a regular appearance at stated intervals.

BIRDS are not very abundant just at present, in this immediate vicinity. The coming of Spring, however, will soon fill the desolate gardens with joyous bird-life.

PLEASE do not forget that we still receive subscriptions for *all papers*, many of them at extraordinary reductions from the publisher's price, with or without the NATURALIST. List free.

THERE are about seventeen hundred students now in attendance at the Normal School located in this city. The range in age from the ten year old to the venerable school teacher of forty-five.

MANY of our subscribers are meeting with excellent success soliciting subscriptions. We trust the good work may go on uninterruptedly, and that the result will be ample.

SEVERAL of our worthy contemporaries continually speak of valuable articles being crowded out. We would suggest that these "valuable articles" be allowed a appearance in the near future, as at present, they are sadly missed.

OUR thanks are due to all those who have so kindly favored us with contributions. When sending *clippings*, please attach the name of the paper from which they were taken, that we may give proper credit.

WE desire our customers and subscribers not to send cash in ten cent stamps. Small amounts less than one dollar may be sent in *one or two* cent stamps, otherwise express order, P. O. money order or registered letter.

ONE of the most interesting yet dead representatives of the insect world is the king of all spiders, the tarantula. We have been promised an article, with illustrations, on this ferocious insect at the scorpion, which will probably appear in Feb. H. N.

AN active demand for curiosities has caused us to arrange an illustrated price list of several rare and desirable objects, the most of which may be put to a practical use, as will be seen by examining the "ad" which appears on the first inside cover. The prices quoted are the charged by all dealer. You will not we make a liberal reduction in connection with the H. N.

## 400,000 Subscribers.

If we gave a column to THE YOUTH'S COMPANION. Announcement, we could scarcely enumerate the attractions it promises for sixty-first volume. Serial stories of adventure and domestic life, including the prize stories for which \$5,000 has recently been awarded. Narratives of travel by celebrated explorers, biography, history, self-hygiene, recreation—and many more subjects are represented in it.

We are not surprised at THE COMPANION having nearly 400,000 subscribers when we know it provides something of interest to every member of the family. THE COMPANION is published weekly, and fully illustrated. Its subscription price is \$1.75 a year.

*The Insect World is dead?*

NEW Price List of eyes can be seen by referring to last inside cover page.

E. L. BROWN, Geo. E. Briggs, and others, please accept thanks for contributions just received.

In the article "Attacked by a Manatee," our printer made it read M(e)nattee. The proof reader has been dead several days.

THERE are several people owing the publishers of H. N. small sums, who are requested to remit immediately. We trust we will not be compelled to open a fraud list at this late date.

THE citizens of Valparaiso are agitating the natural gas question. Several of our leading men are soliciting funds, and active operations will be commenced in the early spring. Should a supply of gas be obtained, it will "boom" business in this city to a considerable extent.

THE *Swiss Cross*, just received, is a model of neatness and beauty. Typographically, it is excellent. The contents are of unusual interest. The illustrations are profuse. We wish this new vessel, *The Swiss Cross*, a prosperous journey, and predict for it a long life.

SPEAKING of the Indiana academy, *Science* says:—"It doubtless owes its existence to the enthusiasm of the secretary of a village society of natural history, Mr. Amos W. Butler, of Brookville, who, in the summer of 1885, assumed the labor and expense of the issue of circulars, appointing a meeting at the capital of the state on Dec. 27 of that year, and making all preliminary arrangements. With such men as Kirkwood, Jordon, Coulter, Owen, etc., as a nucleus, the academy was at once clothed with a dignity and character which drew to it nearly all in the state who were engaged or interested in scientific research. The second meeting, held a few weeks ago, was largely attended, the membership was greatly increased, and the society appears to be starting upon a career of usefulness, which it is hoped may be a long one."

NATURALISTS are requested to send record of albinos, deformities, or internal worms destroying sexual organs in N. A. birds. Full credit will be given in forthcoming work.

H. K. COALE,  
101 Washington st., Chicago.

RECENTLY a friend spoke of reading that many wings and plumes worn by ladies as hat ornaments, were taken from living birds. We were, of course, horrified at his remarks. To our inquiries as to where he had read the article, he could give no light. By persistent research we found the following, which was credited to the Paris correspondent of the *Baltimore Sun*. Though loth to believe, if its reading would cause a single lady to abandon the use of bird wings or plumes as millinery ornaments, we would be highly gratified:

**A Birds' Wing Merchant.**

One of the customers of this curious coffee-seller I must speak of, since I noted his bundle and inquired the cause of his wearing a feather in his sombrero. Seeing at a glance that I was a stranger, he became, perhaps, more polite and communicative than he otherwise would be.

"Yes, sir; I wear this feather because it is the symbol of my trade, and this bundle, too, contains feathers that you speak of as giving an odor. And, sir, I am proud of my calling. Do you know that the martyr King, Louis XIV., delighted in slaughtering swallows, and killed as many as two hundred in a single day? But I kill them not. I only tear off their wings!"

"What, tear them off the live bird?" I remarked in horror.

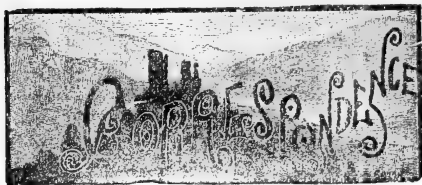
"Yes, sir; that is the only way to preserve their luster in the hats of the fair and fashionable ones."

"But how do you catch the live swallows?"

"Fish for them, sir!"

I begin to be incredulous, but the pale coffee-sipper at once relieves my doubts, and tells me that he sets a series of fine silk threads pendant from poles in the querries of Arcueil and Gentilly, and to the ends of those threads are attached flies fluttering in the air. The swallows, in their rapid flight, overlook the artificial nature of these snares, and swallow the bait, when they are speedily caught and divested at once of their wings. Sometimes, when the weather is warm and stormy, and the swallows fly low, as many as three hundred are caught per day in this way, and cruelly mutilated. This explains what I have more than once noticed in the suburbs of Paris, the writhing body of a wingless bird. I could not help suggesting to this "tearer of wings," that he might at once relieve the poor birds of their agonized pain by killing them outright, after plucking their pinions.





AND  
**TAXIDERMÝ.**

FORT SCOTT, KANSAS.

EDITOR HOOSIER NATURALIST:—A few nights ago, I, with several of my friends, went coon hunting. The first capture we made was an opossum, which was snow white, except at the base of the tail, which was straw-colored. Its ears, also, were of a steel blue. Now I wish to ask, is this a species of opossum, or is it an "albino"? I remain, yours. A. W. G.

**For Egg-Collectors.**

It is well-known among oologists and collectors, that eggs, after being blown, soon lose their natural color and become a dull shade of their former hue. A recipe of some kind, that would prevent this, would certainly be most welcome to egg-collectors. I will, with the editor's permission, suggest one that I have read somewhere, which I have sufficient reason to believe worthy of a fair trial. It is this:—Dissolve a small bit of isinglass in a little warm water, (do not make it too thick), add a few drops of alcohol to prevent the solution spoiling in warm weather, and you have it all ready for use. After blowing the egg and thoroughly washing it out with water, *let it dry*, and then wash it *inside and out* with the solution, laying the egg on a sheet of thin paper to dry. When dry it will adhere to the paper, and in order to remove without breaking, moisten the opposite side of the paper with water. This preparation costs but a few cents and a little trouble, and may prove of great value. If you cannot get the isinglass of your druggist, I will send enough for trial on receipt of postage. I wish every collector who notices this would give it a fair trial and report his success through the H. N. Perhaps others know of similar receipts. If so why not send them for publication in the H. N.

JOHN O. SNYDER, Waterloo, Ind.

We have been favored here (Durand, Wis.) this winter, by visits from nearly all the winter birds. The plump little red crossbills were here early in the fall and I saw them late last spring. They may have been here all summer. I have not noticed them this winter. Evening grosbeaks were first observed Oct. 31—a small flock eating buds of maple and basswood. I have heard their notes occasionally as they were flying over on clear mornings, all winter, and they always seem to be flying south. Have also occasionally seen small flocks of pine grosbeaks. On the same date as the above I saw a flock of cedar waxwings feeding on the berries of the bittersweet. They are not at all particular what they eat, devouring almost anything that is a berry. This is the first winter I have known the cedar birds to remain with us the entire season. Saw a flock of ten of them on Christmas day. Northern waxwings first appeared Dec. 15—a flock of twelve. I have seen them occasionally since, but unfortunately there is not much for them to eat in this locality, so they do not tarry with us long. Of white snowbirds I saw a small flock Jan. 10, but have seen nothing of them since. Red-poll linnets have been abundant all winter, feeding on the seeds of catnip and other weeds. I have just received two snowy owls for mounting. Have heard of seven more being taken in this part of the state, and I expect there are several which are yet at large.

E. L. BROWN.

**Rattlesnakes in Hendricks County.**

G. Dallas Lind, M. D., in his home paper, says: The Indianapolis *Journal* of Jan. 9 has an article entitled, "Snakes and Their Habits," purporting to be the report of an interview with Prof. O. P. Hay and Prof. John Collett, the subject having been brought up by the exhibition at Prof. Collett's room of a box of rattlesnakes captured by M. B. Harvey, of Rainstown, Hendricks county. I had the privilege of seeing these snakes, the other day, and heard their history related by Dr. U. T. Blu, of Indianapolis, in whose office they are at present. Their history is an interesting one, and as many will doubtless read this who have not read the *Journal* article, I have thought it well to give it here:

About the first of August last, two old rattlesnakes, each about eighteen inches long, were captured by Mr. Harvey and put in a box. About the first of September they each brought forth living young.



one six, the other five. The young were about three or four inches long at their birth. For the first month after their birth the young were observed to run into the mouths of their parents and out again. Mr. Harvey is not sure that there were all of them in the throat of the mother at one time, but frequently there were several there. They did not seem to do this from fear. Sometimes a head of one of the young ones was seen sticking out of the side of the mother's mouth, like a cigar.

This habit of swallowing their young has been attributed to snakes of several species, by some authors, but denied by others.

But the most remarkable thing about these snakes is the fact that notwithstanding they have not had a particle of food or drink since captured in August up to the present date, the young ones have grown from the length of three or four inches to the length of ten or eleven inches. This is affirmed by the parties who captured and have kept the snakes. I can testify only to the fact that the young snakes seem to be at least ten inches long at present, and seem rather large for snakes just born. I have no way of accounting for their increase in size. I should like to know whether they increased in weight also, or diminished since born. One part of an animal's body may grow at the expense of another, and I can conceive how one may increase in bulk and diminish in weight, but how it could increase in bulk and weight, and not take any nourishment in the way of food, is to me simply a miracle, because it is contrary to all teaching of physiology that animals derive nourishment from the air, like plants. Here is a chance for some naturalist to make a discovery. Such questions ought to be settled by careful experiments and observations.

The article referred to contains much other matter of interest, but it will be impossible to refer to it here. Only one point, I think I cannot omit, and that is one of practical value: Venomous snakes have rudimentary poison fangs beneath the large fang, and when the latter is extracted, or broken off by accident, the rudimentary fang grows and becomes, in a short time, equal to the first. This is of importance to men who intend to handle snakes whose fangs have been extracted.

There are as many as twelve species of rattlesnakes described by naturalists. The specimens above referred to are of the black, or *Massasauga*, variety of the prairie rattlesnake, a rather rare form in

Indiana. The specimen brought to me by J. H. Rickets, and mentioned in this paper on several occasions, is of the same variety. I have this one nailed up in a box in a cold room, along with a common garter snake, and expect to let them out when the weather gets warm, and thus prove, if they are then alive, that snakes remain in a dormant state, without food, during the cold season of the year.

### Variety and Humor.

Bad books are the public fountains of vice.

Belgians are getting ready to talk by telephone with the French, at Paris.

A timid Chinaman, who dined with the young ladies of a seminary, remarked on leaving, "Too much plenty girl."

The gold medal awarded to General Grant for distinguished services in the Mexican war, and now in the national museum, is bogus.

An Irishman attending the N. I. N. S. reported "plus one" in the arithmetic class the other day, having spent all his time on the one problem. He said: "I'm not stubborn but I'm firm."

A little Rochester girl drew the picture of a dog and a cat on her slate and calling her mother's attention to it, said, "A cat oughtn't to have but four legs, but I drew it with six so she could run away from the dog."

The road-bed and track of the Oregon railway and navigation company, about a mile below the cataract of the Columbia river, are moving *slowly* into the river. The phenomenon is purely local, being limited to a stretch of only a few hundred yards.

### Bird Protection.

With regard to the Audubon Society, I can never be in full sympathy with their aims unless *all birds*—those which are used for food as well as others—are to be protected. To my mind, a bird which has been preserved for study or ornament, is of as much benefit to the world as one which has been eaten—the luxury of an hour. And on the other hand, it will soon be hard to draw the line at birds which are not killed for food. In Minnesota the meadow lark and mourning dove are regularly hunted as game birds, while I am told that the negroes in the South shoot everything that has wings and feathers, for food.

E. L. BROWN.

THE following story is told by a late Savannah paper: "A. P. Wilks, who lived about fifteen miles below Dublin, on the Oconee River, was hunting some hogs in the swamp. His little dog kept trailing something about two hundred yards off. He at first thought it might be a deer, and paid little attention. Some time afterward, hearing the dog bark, he went to him, and found he had caught a large gobbler. The turkey had dragged the dog into a lake and was swimming across with the dog hanging to its tail. A brother of Mr. Wilks leaped into the water, secured the turkey, and carried him home. The turkey weighed twenty-one and a half pounds when dressed."

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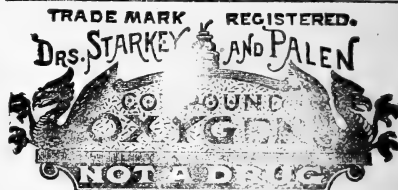
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Mr. Cicero Beardsley showed us a winter butterfly. On the 30th of December they received some plant slips from Iowa, and on the 5th of January, Mr. Butterfly appeared, and at the present writing seems happy in the possession of a world of his own, in the sunshine by the window.—*Sandwich (Ill.), Free Press.*

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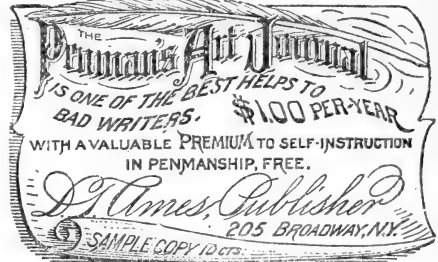
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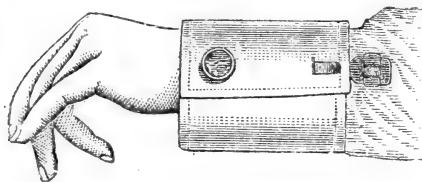
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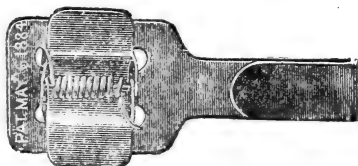


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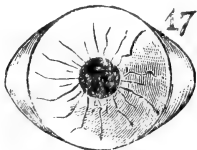
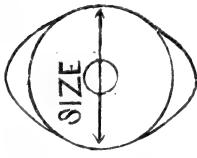
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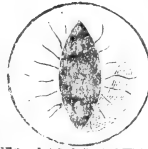
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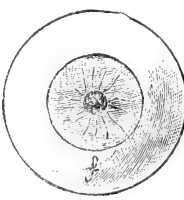
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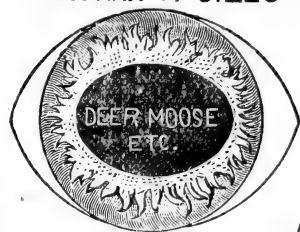
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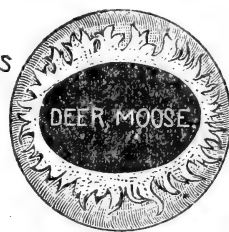
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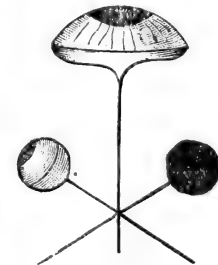
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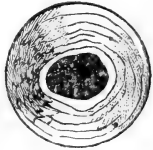
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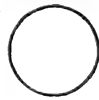
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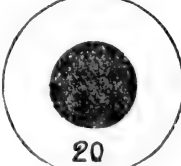
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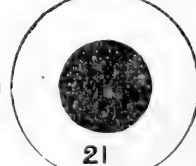
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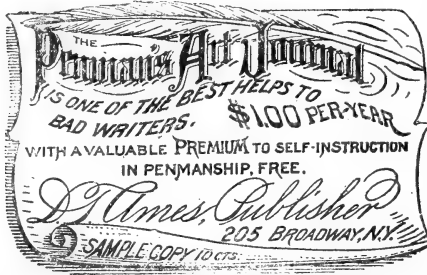
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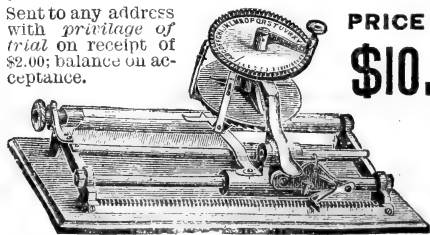
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# THE HOOSIER NATURALIST.

II. No. 7. VALPARAISO, IND., FEBRUARY, 1887. } PUBLISHED MONTHLY  
60c. PER YEAR.

## Gentle Spring.

"Gentile" spring is hither winging;  
Birds will soon be gaily singing  
(In their cages);  
Soon the "greens" and the "grasses,"  
And the "surphur and molasses,"  
Will be "rages."

EELY O'MALLEY.

## About My Pets—One of Them.

BY THE HOOSIER SCHOOLMASTER.

No one would doubt that intelligence has often found in animals several degrees below us if they knew my little friend Frank. Frank is not a boy, a horse, a dog, or a cat; but a bird. A little gold robin who has not yet seen all of his first winter. He belongs to my young friend Azalia, who claims ownership by right of possession, having captured the little fellow one desolate morning as he sat shivering and complaining alone in the wet grass. Frank was not acquainted with all his friends, but offered determined resistance when he found himself in possession of a strange being, and called loudly for father and mother. However, no answer came and he seemed to realize that his new acquaintance must be his all,—his parent, friend, protector.

He took kindly to his gentle captor and soon came to feel himself entirely at home among his new surroundings, and even to assert rights which indicated that he held a high estimation of his own importance.

Frank was not pretty at first, as he was

slow to change his ragged summer suit for a heavier, prettier one, and when the change did come he was dissatisfied with the extended tail, and persistently plucked off the skirts, yes, every feather. His little captor was disgusted, for she expected much beauty, and she cast him out upon the cold, heartless world, with out friends or home. This did not entirely discourage him, for he seemed to feel that there was still a way back. He didn't seek new friendship with his natural relatives, other birds, but just set about making himself at home around the old familiar doorway. He never lost one bit of his friendliness, but persisted in keeping up the acquaintance, chatting and strutting about, 'til finally he triumphed. The doors were thrown open and in he walked.

Frank did not improve very much by this sad experience, but his intelligence increased every day, and he soon came to be appreciated for his intrinsic worth as an entertainer and household disturber.

It would take me a long time to tell you the knowing and cunning things which he has done. He possesses a very wise, knowing way that is sure to attract attention. He flies about the room, taking possession of such places as suit his convenience, and woe be unto the one who attempts to dislodge him. At the least interference he drops his head, spreads his wings in a threatening manner and darts upon the intruder with great vigor.

However, he usually overestimates his strength, and receives a chastisement which causes him to slink away and pout. These sullen spells last for from a half hour to a half day, and are concluded by some mischievous act which shows that he has not only forgiven but forgotten as well.

Frank is a great thief. He will steal any thing he can carry or drag, and will spend hours tucking things securely away in some favorite nook always in view. He will pry open the work box, by inserting his slender bill between the lid and box, then opening his bill and following the advantage gained by crowding his head farther forward, after which he arranges needles, thread, spools and shears in a manner entirely to his liking. He has no fear of the cat and dog, but frequently lights upon them and tries to cultivate a more intimate acquaintance.

There is something higher than instinct that governs many of his actions. If you give him food he does not relish, he scatters it about or feeds it to the canaries, and then with the most tramp-like assurance calls for more. If food is hard he takes it to his water cup and puts it to soak, then, taking a place on a perch near by, waits 'till it has had time to soften. If the substance will not yield he expresses disappointment, disgust and sometimes even anger, and throws the substance away or donates it to the canaries.

One day his little mistress came to me in great anger saying Frank must be killed. The cause was this. He had been sitting soberly on his perch in a large cage containing, besides himself, several rare canaries. He seemed to be resolving some great idea in his mind, something that would improve the appearance of his companions. The matter seemed finally to be settled. As a little yellow beauty flew past him he caught it by the wing, took it to the bottom of the cage, and there, with one foot on the canary's legs, and one on his wings, he held him down until the little victim's entire tail

had been plucked out. When his work was done he expressed great satisfaction as he surveyed the poor little canary's shorn appearance, and seemed to think he had done a very benevolent act.

He is always busy. He will fashion paper, entwine strings, play marb by dropping buttons through the hole in the cane-seat of a chair, and then gander the chair after them, repeating the process for a long time, and doing many other things, which goes to show that Frank has a brain susceptible of cultivation, and that we may hope to hear more of him when his faculties have fully matured.

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### Horse Sense.

---

Horses vary in intelligence just as their human masters do. Occasionally we will find a horse possessing a vicious temper. If well and kindly treated, however, they are our friends and devoted servants, doing almost our every bidding.

Prof. Crocker, a skillful horse trainer was in Valparaiso recently, for several days, with sixteen "educated horses."

We visited his entertainment one evening at the Opera House and for the benefit of our many readers who could not be present, will endeavor to relate what we saw.

The stage was covered with saw dust, a rope being stretched in front to prevent the horses cultivating a too close acquaintance with the orchestra.

As the curtain raised a troop of twelve beautiful animals rushed in from behind the scenes, romping and frolicking with great abandon. A bell was heard, the play ceased, and as the master entered with his overcoat on his arm and his hat in his hand, they separated into two classes, six to the right and six to the left. "Lewis take my hat and bring me a chair. Frank take my coat;" and the horses designated carried the gar-

ments away, Lewis returning with a chair.

A blackboard is brought in on which are some figures. Eagle finding the example wrong takes a sponge between her lips and, after several attempts, succeeds in erasing the figures and is then dismissed.

Victor is then called out, and stops in front of the Professor. By word of command he turns in a circle to the right or left, walks to the right and turns, then to the left and back again, and finally lies down and sleeps. When the Prof. wishes him to wake up he does not stir. "Ah! you wont wake up. All right. I'll get a bucket of cold water," and as he starts to fulfill his threat. Victor suddenly awakes to the great amuzement of the audience.

Two handkerchiefs of different colors are now placed on the rope in front of the audience, and one in a desk just brought in, and the lid closed. Hugo comes forward. The Prof. requests some one in the audience to name the handkerchief he desires Hugo to get. Blue is called for. Hugo goes to the desk, raises the lid with his nose, takes out the handkerchief and carries it to his master. This is repeated several times to the entire satisfaction of all present. Hugo certainly can distinguish colors.

The horses are now allowed a recess. Bird becoming refractory is punished with twenty lashes. The Professor brandishing his whip ferociously, cracks it loudly each time, as its long lash winds gently and harmlessly around the outstretched neck of Bird, who does not eveh finch.

The gas is turned low, a colored light is ignited, the horses are at the farther side of the stage all facing to the right, and standing in position to each other as the steps of stairs are related to those above. At a word from the Professor each horse places his head over the neck of the one to the left. The effect is extremely pleasing.

He speaks again, and the six horses to the left turn about, facing the left and again place their heads over the necks of their neighbors, the whole forming a tableau of great beauty, which will linger long and pleasantly in the memories of all who saw it.

A stand is now brought in, bells are placed upon it, and Frank, Lewis, Hugo, Victor, Turk, Eagle and Alger act as bell-ringers, apparently hugely enjoying the melody from the chiming bells.

A heavy plank, twenty-six inches wide, is now laid across a log. One end of the plank rests on the floor, the other is elevated some five feet. Turk undertakes to roll a barrel across the plank, but Alger, full of fun, steps on the plank, compelling Turk to roll the barrel to the farther end before he can get off.

The curtain now drops for a few moments, and on being raised we see before us a court scene. The judge is soberness and seriousness personified, being a veritable though diminutive donkey, and fills the position admirably. The prisoner is in chains. The jury retire and immediately return, the verdict being "not guilty." The sheriff then releases the prisoner who is no doubt extremely grateful to both court and jury.

The most miraculous of all, perhaps, is the military drill, the orchestra playing appropriate music. The horses entered into this with great spirit and enthusiasm. They went through all of the various and intricate movements, formed in two lines, moved in platoons of two, and divisions of four, wheeled to the right and left, formed a hollow square, marched in company front, about faced, and conducted themselves for all the world like rational beings—in fact, as one of our militia boys remarked, "they moved with greater precision and more understandingly than one half of our own company," and we think so too. It was really wonderful.

Again the curtain drops, and as it raises we are introduced to a "night scene in camp." The horses have retired, all being asleep within the earthworks excepting Hunter and Eagle who are doing picket duty. An alarm is suddenly given, a messenger arrives from headquarters with a dispatch for the commander. It is a demand for an immediate and uncondi-

tional surrender. "Surrender? No! not so long as I have a soldier left to fire a gun," shouts the General, and the battle begins. Captains Draco and Bird take command of companys A and B. The fort opens fire, and through the smoke and confusion, shouts and cries, the beat of drum and martial music, our horse heroes display great energy and courage, rushing up to the cannon, firing and retreating rapidly. Turk arrives and fires the mortar which demolishes a portion of the fort, setting it on fire and a glorious victory is won.

This ended the performance. Descending the iron stairway leading from the opera house, we were confronted by a sea of upturned faces, so joined the already large crowd to wait for the coming of the horses down those same stairs. The audience having entirely left the building, a thick matting was unrolled over the steps, we presume to keep the horses from slipping, and they were led down, one by one, excepting the judge, who walked leisurely down without an attendant, to the intense delight of all the small boys and big ones too.

That night our dreams were filled with lovely and intelligent horses who capered and danced, doing our every bidding.

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For The Hoosier Naturalist.

### Prairie Chickens in Winter.

On February 6th, 1886, I took a walk through the river bottoms near here. Had not gone far before a prairie chicken (*Cupidonia cupido*) flew up. On going to the place she started from, I found that she had burrowed a hole under the snow about a foot deep and two feet long. On hearing me walking, she had broken through the thin crust forming the roof, and darted off. I afterwards flushed several the same way, and found one place where several had used the same burrow. There was three entrances to it, and it looked as if it had been used several days. Generally they seem to have been used but once. Found about forty of these burrows along the banks of a small creek near the city limits.

I wanted to get a good view of them as they started from their burrows, so walked along very carefully, and soon saw one stick her head up through the crust of the snow. I stopped and stood

perfectly quiet a minute or two and watched her. She kept her long neck craned out and moved her head in every direction, just exactly like a tame chicken would do when alarmed. But upon my moving my arm a little, up she flew, scattering the snow in every direction and making a few cackling notes of alarm. I went up to the burrow and found it just like the rest, excepting that there was a hole in each end of the burrow, the one she went in by and the one she flew from. Most of the burrows had but one hole, which they had used to go in and come out of.

During the latter part of November the prairie chickens commenced coming into the river bottoms in large numbers, which is something unusual. Parties have counted sixty and more in a flock, sitting in trees. Early in the morning and towards sunset, they fly in small flocks to the top of the ridges and hills on each side of the river, to feed on grass seeds, etc., on the ground where the snow has been blown off. When flushed they generally alight on a tree and it is impossible to get within gunshot range of them then. This saves them from being "poached," as there are several here who do not care much for game laws.—C. B. J., Red Wing, Minnesota.

---

### Destroying the Codlin Moth.

The practice of spraying Apple orchards' just after the fruit has set, with Paris green or London purple, is coming more and more into favor, as it proves to be effectual for the destruction of the codlin moth, and with no injurious effects to fruit or trees.—*Vick's Magazine*, for February.

---

The newest Paris sport is snail racing. The race course is a smooth board, at the end of which is a lighted candle, toward which the snails begin to creep when the room is darkened. There are miniature hurdles on the course and a river, and the famous racing snails are handicapped with pellets of clay.

One of the finest and biggest nuggets of gold ever found in California is on exhibition in San Francisco. It is as large as an ordinary Derby hat and weighs 35 pounds troy. It is almost pure gold and is worth nearly \$7,000.

## Sand Darter.

Common.

- 52.
- Etheostoma nigrum*
- Raf. (885d) S. 766

Johnny Darter.

Common. [776]

- 53.
- Etheostoma blennioides*
- Raf. (894) S.

Green-sided Darter.

Common. [789]

- 54.
- Etheostoma caprodes*
- Raf. (899) S.

Log Perch. Pike.

Common.

- 55.
- Etheostoma flabellare*
- Raf. (923) S. 804

Fan-tailed Darter.

Obtained several specimens. [811]

- 56.
- Etheostoma caeruleum*
- Storer. (936) S.

Rainbow Darter.

Very common. Fine specimens from Otter creek. [(941b) S. 819]

- 57.
- Etheostoma eos*
- Jordan and Copeland.

Sunrise Darter.

One from Lost creek. Several from ponds across river from T. Haute after "high water" receded. [(902) S. 783]

- 58.
- Etheostoma aspro*
- Cope and Jordan

Black sided Darter.

Obtained 4 specimens from Otter creek.

- 59.
- Perca lutea*
- Raf. (947) S. 826.

Yellow Perch.

I think it is not common in Wabash.

- 60.
- Stizostedion vitreum*
- Mitchill. (948) S. 827.

Pike. Wall-eyed Pike. Salmon.

In market from Wabash. [S. 828]

- 61.
- Stizostedion canadense*
- Smith. (949)

Sand Pike. Sauger. Gray Pike.

In market from Wabash.

Family 17.

SERRANIDÆ.

(Sea Bass.)

- 62.
- Morone interruptus*
- Gill. (956) S. 832

Yellow Bass.

In the museum of De Pauw University. Caught by Dr. P. S. Baker.

Family 18.

SCLENIDÆ.

(Croakers.)

- 63.
- Aplodanotus grunniens*
- Raf. (1083) S.

White Perch.

Very common in the Wabash.

Greencastle, March, 1887.

## Notes on Oology.

At this time in the world's history when there are collectors of all kinds, gathering together what many people call the most worthless things under the sun, it is not surprising that we find many whose "hobby" it is to collect and arrange in order the eggs of our numerous wild birds. In this paper I propose to throw out a few hints in hopes that they may be the means of assisting some brother oologist in his endeavors. In commencing to make a collection of birds' eggs, we must have enthusiasm and patience, for we cannot expect to get many specimens without considerable trouble and time.

It is a common mistake to be so anxious to obtain a large number of eggs, that little or no care is taken to identify them, but it must be remembered that an egg is of very little value in any way, unless the identity is certain. When starting for an afternoon's collecting, you will need to have a box of wood or tin, filled with wool or cotton and so arranged with a strap that it can be bound firmly about the body. In articles on this subject, we are often told of eggs being broken in the mouth, while taking them down from tall trees, and all those who have read "Tom Brown's School-days" must remember his sad mishap; but you can easily avoid all this trouble by placing the eggs in the box before commencing to descend, being very careful to put plenty of wool or cotton between them, as they are very apt to work together and get destroyed. If you should discover a nest containing eggs unknown to you, be careful not to disturb it, but retire to some place near at hand and wait till you can obtain one of the parent birds. Either the whole skin or a portion of it, such as the wings and head should be preserved till you can find out the species from some oologist more learned than yourself. But much care must be taken in determining which really is the parent bird, as birds of different varieties often have their nests so close together, that their actions would deceive a careless observer. It very often happens that nests are found which have not their full complement of eggs: in this case they should invariably be left until the whole set can be obtained. When you have got the eggs, the next thing to do is to preserve them. Every oologist should have several sizes of drills, a blowpipe, embryo hooks and scissors for cutting the embryo.\* Taking the egg lightly in the left hand drill

## Silver-jawed Minnow.

Very common.

32. *Semotilus atromaculatus*. (347) S. 347  
Chub. Horned Dace.

Common in small streams. [(418) S. 417]

33. *Notemigonus chrysoleucus* Mitchill.  
Golden Shiner.

Common. [326, 327.]

34. *Hybopsis Kentuckinus* Raf. (328) S.  
River Chub.

Common.

## Family 8.

## HYODONTIDÆ.

(Moon Eyes.)

35. *Hyodon alosoides* Raf. (430) S. 432.  
Toothed Herring.

Common in Wabash.

## Family 9.

## DOROSOMIDÆ.

(Gizzard Shads.) [S. 451]

36. *Dorosoma cepedianum* Le Sueur. (455)  
Hickory Shad.

Common. Most fishermen believe that these shad are from those put in the river some years ago through the agency of Hon. Richard W. Thompson and are called sometimes "Dick Thompson's shad." This is not the species put in the river by him, nor have I seen a single specimen of the species, and it is not probable that any are taken.

## Family 10.

## CYPRINODONTIDÆ.

(Cyprinodonts.)

37. *Zygonectes notatus* Raf. (576) S. 550  
Top Minnow.

One specimen from Honey Creek.

## Family 11.

## UMBRIDÆ.

(Mud Minnows.)

38. *Umbra limi* Kirtland (596) S. 571.

Mud Minnow. Dog fish.

Two specimens taken from ponds opposite T. Haute, (across river).

## Family 12.

## ESOCIDÆ.

(Pikes.)

39. *Esox vermiculatus* Le Sueur. (598) S.  
Pike.

[574]

## Very common.

## Family 13.

## ANGUILLIDÆ.

(Eels.) [(638) S. 587]

40. *Anguilla anguilla rostrata* DeKay.  
Common Eel.

Common.

## Family 14.

## ATHERINIDÆ.

(Silversides.) [639]

41. *Labidesthes sicculus* Cope. (728) S.  
Skip Jack. Brook Silverside.

Common.

## Family 15.

## CENTRARCHIDÆ.

(Sun-fishes.)

42. *Pomoxys annularis* Raf. (842) S. 724  
Crappie. Rock Bass.

Common. Wabash and ponds in Wabash bottoms. [725]

43. *Pomoxys sparoides* Lacepede (843) S.  
Crappie. Rock Bass.

Common in Wabash and tributaries. Not distinguished by fishermen from preceding. [727]

44. *Ambloplites rupestris* Girard. (845) S.  
Red-eye. Rock Bass.

Common.

45. *Lepomis cyanellus* Raf. (853) S. 736  
Sunfish.

Very common. [749]

46. *Lepomis megalotis* Raf. (864) S. 747.  
Sun-fish.

Common.

47. *Lepomis pallidus* Mitchill. (869) S. 751  
Sun-fish.

Common.

48. *Lepomis gibbosus* Lin. (875) S. 757  
Sun-fish.

Common. [S. 759]

49. *Micropterus salmoides* Lacepede (876)  
(Large mouthed Black bass.)

Common. [S. 760]

50. *Micropterus dolomieu* Lacepede (877)  
Small-mouthed Black bass.

Common.

## Family 16.

## PERCIDÆ.

(Perches.) [762.]

51. *Etheostoma pellucidum* Baird. (880) S.



## Dog Fish. Pond Fish.

Wabash and tributaries.

## Family 5.

## SILURIDÆ.

(Cat Fishes.)

[87

7. *Noturus miurus* Jordan. (116.) S. 86,  
Variegated Stone Cat.

Otter creek and other streams. Common.

8. *Leptops olivaris* Raf. (120.) S. 91  
Yellow Mud-cat.

Wabash. Very common.

9. *Amiurus melas* Raf. (124.) S. 95, 96  
Mud-cat. Bull head.

Very common in ponds.

10. *Amiurus nebulosus marmoratus* Holbrook. (125c.) S. 97

Bull head.

Saw one on boys' string from a pond opposite T. Haute after fall of river in spring.

11. *Ictalurus punctatus* Raf. (134) S. 108  
Channel Cat.

Wabash and tributaries. Common.

## Family 6.

## CATOSTOMIDÆ.

(Suckers.)

12. *Ictiobus cyprinella* Cuvier & Valenciennes. (144.) S. 113

Red mouthed Buffalo.

Wabash. Common. This and the species of Buffalo named below are not distinguished by many fishermen from one another.

13. *Ictiobus urus* Agassiz. (145) S. 114  
Big mouthed Buffalo.

Common.

14. *Ictiobus bubalus* Raf. (146) S. 115.  
Small-mouthed Buffalo.

Common.

15. *Ictiobus velifer* Raf. (148) S. 120  
Quill back.

Very common. [S. 121

16. *Ictiobus velifer difformis* Cope. (148d)  
Deformed Quill-back.

Rather common, but not distinguished from the preceding by fishermen. [S. 122

17. *Cypleptus elongatus*. Le Sueur. (150)

Strangely enough called by Terre Haute fishermen Muskalonge, which it

hardly resembles. It is called elsewhere Black Sucker or Gourd-seed Sucker. Rather common.

18. *Catostomus teres* Mitchill. (170) S. 143  
Common sucker.

Wabash and tributaries. [S. 145

19. *Catostomus nigricans* Le Sueur. (171)  
Hog Molly. Stone Roller.

Wabash and tributaries. Very common. (185) S. 160

20. *Moxostoma macrolepidotum* Le Sueur.  
Common Red-Horse.

Wabash and tributaries. Very common. [S. 168

21. *Placopharynx carinatus* Cope. (193)  
Big-jawed Sucker.

Given by Jordan in Ohio Geol. Rep. Vol. IV. as from Wabash at Terre Haute.

## Family 7.

## CYPRINIDÆ.

(Minnows.)

[S. 171

22. *Camptostoma anomalum* Raf. (196)  
Stone Roller.

Very common. [S. 182

23. *Hybognathus nuchalis* Agassiz. (216)  
Silvery Minnow.

Common.

24. *Pimphales notatus* Raf. (219) S. 193, 194.  
Blunt nosed minnow.

Common. [S. 202, 203, 215.

25. *Cliola vigilax* Baird and Girard. (223)  
Bull-head minnow.

Common. [246, 247.

26. *Notropis Whipplei* Girard. (261) S.  
Silver Fin.

Common. [272

27. *Notropis megalops* Raf. (273) S. 260.  
Shiner.

Common. [(296b) S. 288

28. *Notropis ardens lythrurus* Jordan.  
Red Fin.

Common. [302

29. *Notropis atherinoides* Raf. (308) S.  
Rosy Minnow.

Common. [304

30. *Notropis rubrifrons* Cope. (310) S. 301  
Rosy-faced Minnow.

Common.

31. *Eriocymbra luccata* Cope. (314) S. 308

### List of Fishes Collected in Vigo County in 1885 and 1886.

By O. P. Jenkins, DePauw University.  
(From the proceedings of the Terre Haute  
Scientific Society.)

The following is a list of fishes collected by me in Vigo county in the fall of 1885 and in the Spring and Summer of 1886. The work was undertaken as a part of a Biological survey proposed by members of the Terre Haute Scientific Society. The list with possibly one or two exceptions, includes only those fishes which I myself have taken or seen with an opportunity for identification. Those fishes about which I have been in any doubt whatever I have submitted to Dr. Jordan for identification.

The fishes of this list were obtained from the Wabash, Otter creek, Honey Creek, Lost Creek, Coal Creek and various ponds in the county. The fishing was done with what is known as a Baird collecting seine of fine mesh. Specimens of most of the fishes are in the museum of the State Normal School. Some of the specimens examined were too large to be conveniently preserved, as the Buffalo fishes, and some of the Cat-fishes. There are other species which doubtless occur in Vigo county as may be inferred from the places in which they have been found in the vicinity of Vigo, both in Illinois and in Indiana, but it was thought best to include in this record only those that have been actually seen in Vigo county. This is, as far as I know, the only attempt at a list of Vigo county fishes, and is the record of the first fishing in the county with a view of ascertaining the species of fishes which inhabit it. Beside the native fishes given in this list two varieties of carp (*Cyprinus carpio*) are found in carp ponds, first introduced I believe in Vigo county by Mr. Joseph Gilbert and the gold fish (*Carassius auratus*) kept in aquaria.

The list includes 63 species, representing 18 families. These include many important food fishes. It would much surprise those little acquainted with the facts to know the amount of fish used for food taken from only that part of the Wabash which touches Vigo county. I have no accurate knowledge on the subject but think it is one worthy investigation. The amount taken from the whole river and its tributaries must be very great. The fishes of the Wabash offer an excellent subject for study from both a scientific and an economic standpoint.

There is every reason to believe that if the natural history of the fishes of the Wabash were well understood (that is their food and other conditions of growth and development, their habits and seasons of breeding, their migrations and the like) and then that this fine fishing field were under intelligent control, that it might be made to yield a far greater amount of food supply to the State. As a great number of the fishes in this list are not known at all to the people of Vigo county I have introduced the "common names" assigned them in the Ohio Geological Report, Vol. IV. Jordan, as a matter of information to those of this region into whose hands this list may fall. This is especially true of the minnows and darters. The figures in parentheses following the specific name refer to the list-number in Jordan's *Catalogue of Fishes of N. A.* The figures accompanied by the letter S. refer to the number in Jordan and Gilbert's *Synopsis of Fishes of N. A.* to which the name here is equivalent.

#### Family 1.

#### POLYODONTIDÆ.

(Paddle Fishes).

1. *Polyodon spathula* Walbaum (100) S. 73

Spoon-bill Cat.

Wabash, rather common.

#### Family 2.

#### ACIPENSERIDÆ.

(Sturgeons).

[77]

2. *Acipenser rubicundus* Le Sueur. (104) S. 8.

Common Sturgeon.

Not common, although said to be so a few years ago. [inesque (106) S. 79]

3. *Scaphirhynchops platyrhynchus* Raf.

Shovel-nosed Sturgeon.

Very common in Wabash.

#### Family 3.

#### LEPIDOSTEIDÆ.

(Gar-Pikes).

4. *Lepidosteus osseus* Lin. (107). S. 80

Long-nosed Gar.

Wabash and tributaries, common.

5. *Lepidosteus platystomus* Raf. (108) S. 81

Short-nosed Gar.

Common in Wabash.

#### Family 4.

#### AMIIDÆ.

(Mud Fishes.)

6. *Amiatus calvus* Lin. (110.) S. 83

a hole in the side. Then holding it over a basin of water,—in case it should drop from your fingers—place the pipe close to the edge of the hole and blow gently through it. If the egg is fresh, its contents may be removed in this way in a very short time, but when incubation is advanced you must be very careful or it will be completely spoiled. If it does not come out of the hole you have made without forcing, take a pin and pick out quite a large hole as regularly as possible, cut the embryo in small pieces with the scissors and take out piece by piece. It is also a good plan to fill the egg with water and let it stand for twenty-four hours, when the embryo will become quite soft and can easily be taken out. The egg should then be filled part full of water, which may be inserted with the blowpipe, and carefully rinsed out. After it has been thoroughly cleansed it may be allowed to dry, by placing it hole downwards on blotting paper. The egg should be moved every few minutes, however, as it is very apt to stick to the blotter and then broken on attempting to remove.

Much care is required in keeping a correct record, or data, of your eggs. Most oologists have small slips of paper printed as follows:

No. \_\_\_\_\_ Name \_\_\_\_\_  
 Collected by \_\_\_\_\_  
 Locality \_\_\_\_\_  
 Date \_\_\_\_\_ Set \_\_\_\_\_  
 Identity \_\_\_\_\_ Incubation \_\_\_\_\_  
 Nest \_\_\_\_\_

They are then filled out in this style:—

No. 723 Name Leach's Petrel  
 Collected by A. C. Kempton.  
 Locality Chester, Nova Scotia.  
 Date May 29, 1886. Set 1  
 Identity Shot parent. Incubation Fresh.  
 Nest At end of burrow in ground.

These should be placed in the cabinet with the eggs. The eggs should be numbered with a soft lead pencil according to some standard check list.

The "cabinet" is often a source of much anxiety to the young collectors, but a box three feet long, two wide and four inches deep, divided into compartments, and partially filled with grated cork or boxwood dust answers the purpose admirably. It is a great improvement to have a tight-fitting glass cover over the box, as it keeps all dust off the eggs and makes them appear to better advantage.

\*For sale by B. B. Trouslot & Co., Valparaiso, Ind.

During the winter months when nothing can be done at nesting many desirable specimens can be obtained by exchanging with other oologists. In sending eggs through the mail they should be securely packed in tin, or wooden boxes, each egg being rolled in cotton, and wound about with tissue paper, care being taken not to crowd them too closely together. Every oologist should have a note book in which to keep a full account of his specimens, having each entry to correspond with the numbers on the data.

A. C. KEMPTON.

### Collecting Insects.

Much delicacy of touch is requisite in handling butterflies and moths, the feathers rub off so easily. To catch them, make a bag of old silk veiling with a hem around the top through which run a stout wire, bend it around into a circle and fasten the ends of it securely to a light stick several feet long; this can easily be used by the youngest child.

Drop the insect caught into a wide-mouthed jar prepared as follows: Lay in the bottom three or four pieces of cyanide of potassium as large as a walnut. Pour over these, plaster of Paris made liquid with water, until the lumps are covered. The plaster must be poured in immediately upon wetting, as it hardens at once. It will thus leave a perfectly smooth floor upon which any insect will quickly cease to live. Keep the jar tight and it can be used a long time.

These collections are very beautiful and well worth the trouble.—Insect World.

### A Fish Fast in a Bottle.

A Baltimore oysterman the other day fished up a bottle to which a large bunch of bivalves had grown. Inside the bottle was a fish too large to get out of its mouth. It is supposed that the fish went into the bottle and either liked its quarters so well that it tarried too long, or before it could find its way out had grown so large as to nearly fill the bottle. The bottled fish will be sent to the Smithsonian institution as a curiosity.—Chicago Times.

# GEOLOGY.

This department is conducted by W. R. Lighton, Leavenworth, Kan. All inquiries and communications under this head should be addressed to him.

## Economic Geology.

### SECOND PAPER—BUILDING STONE.

#### PART I.

In the selection of a stone that is to be used in the construction of buildings and for other economic purposes, the two principal points to be determined are, First, is the physical and chemical composition of the stone such that it will withstand the action of the weather sufficiently? Second, is the stone sufficiently tenacious to bear the pressure to which it would be subjected in the walls of a building?

Of course, in estimating the weathering qualities only the natural agencies of rain and frost are to be taken into consideration.

A distinction is to be observed between the meaning of the terms *hard* and *tough*. A stone may be very hard and still so brittle as to crumble easily under pressure. The diamond is the best illustration of this. Again, many of our lime and sandstones are very easily scratched and cut, but are still difficult to break under a blow or under pressure because of their peculiar physical structure.

The actual and relative importance of these questions of course depends upon the use to which the stone is to be put. For instance, if a stone is to be used for flagging purposes it would be necessary to have it of such material as will weather well and is at the same time hard, though it is not so essential that it should be tough, as its use will make it necessary for it to bear the constant wear of feet but it will have no pressure imposed upon it.

Then, a stone that is to be used in the construction of the walls or foundations of large buildings must be able to "weather" well and must be *tough* rather than *hard*.

In interior and decorative work of course the weathering powers of a stone become secondary in importance and it is to be observed that the material will admit of being easily cut and worked and is so tough that it will not break under the treatment. Our marbles and gypsum are of this nature, as is also the Mexican onyx.

As in this part of the country our building stones consist almost altogether of lime and sandstones I shall speak principally of these and but little of the granites and similar materials in use in the eastern states.

The safest and surest way of ascertaining the weathering qualities of a stone is to observe it as it lies in its natural bed, where it outcrops on the surface and has been exposed to the action of rain and frost for many years, for quite frequently there are causes which it is impossible to foresee that will effect a rapid decomposition of the stone upon exposure to the weather, although it may have promised well in appearance, composition and physical structure. This test advised is a severe one but is reliable.

As above stated it is impossible to tell always whether a stone will bear exposure, but there are a few principles which will be of much assistance in the matter of determination.

First, the stone should be evenly and firmly bedded and not constituted of alternate soft and hard layers so that it splits apart very easily. Often a thin layer of a material that will not weather has been overlooked and caused much trouble when the stone was placed in a position where one even in texture was needed.

Many times lime and sandstones are impregnated with sulphuret of iron, or iron pyrites, and when this is the case the stone should be rejected, for upon exposure to rain and moisture the sulphuret will "rust out" or be altered to an oxyd, causing the stone to crumble away. Stones are quite often colored variously by iron oxyd, but this is not to the great detriment of the stone.

The beautiful mottling of many of the marbles is due to the presence of iron oxyd. The sulphuret, however, must be carefully guarded against, as should any of the metals that would oxidize upon exposure.

The limestones that are crystalline in structure weather better than those that are not crystalline, but it must be noticed that the structure is not too *coarse*, as when the crystals are large the stone becomes brittle and will not bear a great pressure, but when a crystalline limestone which is very fine in texture can be obtained it is one of the most valuable stones that can be used for general purposes. This texture may be easily discovered by turning a freshly broken surface to the sunlight and noticing if the light shines upon the faces of crystals exposed:

or, better yet, examine the fresh surface with a magnifying glass, as by this method there is no liability of mistaking the presence of other minerals for the crystals themselves.

### Likes the Geological Department.

I wish to express my approval of the new addition to the H. N., the department of geology. It is just what we need, for it would be difficult to find a better field for the study of this branch of science. I for one would like to see short practical reports from the different localities of outstate. The study of economic geology has attracted attention to and developed our vast resources, coal, quarries of the finest building stone, glass sand, limestone, cement, etc. Just now many successful gas wells are attracting the attention of our people; and it is possible that petroleum may be found in paying quantities in Indiana.

W. R. L., in the January number, has chosen a subject that is especially interesting us, as it treats of one of our most valuable resources. Let us have local reports in this department. E. L. R.

### On the Family Cicindelidae.

J. D. SHERMAN JR., PEEKSKILL, N. Y.

The family Cincindelidae is the first of the eighty-one families into which our North American species of the suborder Coleoptera are divided. The family embraces over nine hundred species, sixty-nine inhabiting our continent.

The species which are usually of moderate size and commonly, though very aptly, designated by the terms "tiger beetles" and "sparklers" (the former in allusion to their carnivorous appetites, the latter referring to the brilliancy of their metallic colors), live in hot sandy districts, and fly very swiftly over grassy paths and stony roads during the hot sunshine: in the tropics, the species of *Blenostoma* and allied genera are found on the leaves and trunks of trees.

It is a fact worthy of notice, that these active and wary beetles having once been disturbed, usually alight facing the disturber. The "sparklers" are usually of grayish or greenish hues, with purplish and metallic reflections, and have the elytron spotted or striped with lighter tints; the species are very variable, and

assimilate, in color, the plants which they haunt. The structural characteristics of these beetles are: head large, broader than the thorax; mentum deeply emarginate; ligula small, concealed; inner lobe of maxillæ terminated by an articulate hook; antennæ long and slender; mandibles very large, acute; eyes large and prominent; legs slender.

The remarkable looking hunch-backed larvæ of a whitish color, have a very large flat metallic-colored head, with long toothed mandibles, and large and broad thoracic segments, the ninth segment being armed with two large two-hooked tubercles.

Our North American species may be divided into three tribes, by name *Manticorini*, *Megacephalini* and *Cicindelini*. The tribe *Manticorini* is composed of species of corpuscular habits and apterous, having small eyes and elytra connate, or closely united. The tribe *Megacephalini*, includes *Tetracha* composed of two southern species. The third tribe, *Cicindelini*, embraces most of our species.

In Peekskill, I have found the following species, viz., *C. 6-guttata* Fab. Green, three white dots on each elytron. Length, half an inch. Moderately common on grassy paths in April and May. *C. patruela* Dej., variety of the former. Green, with a median transverse stripe; humeral, subhumeral and post-median spots, and apical fascia, white. A little longer than the preceding species; common on grassy paths in May and August. *C. purpurea* Oliv. is purplish or reddish, with green border on edges of the elytra, which are decorated with the same markings as are seen in *C. patruela*. Size of the latter. Common on stony roads in September. *C. hirticollis* Say., is copper-colored, with a crescent-shaped humeral mark. The transverse median line becoming an oblique longitudinal line after traversing half the distance to the suture where it is connected with a longitudinal line on outer edge, and a whitish apical mark; neck hairy. Very common along sand banks in May; roads, in August. Length, 0.45 inch. *C. vulgaris* Say., blackish brown or blackish-green, with the marks of *hirticollis*. Uncommon. Found in September along stony paths. *C. punctulata* Fab. Black with two or three white marks on each elytron which are ornamented with a row of rather indistinct green spots along suture. Length of *hirticollis*, but slenderer. Common in gardens and meadow-paths, in July and August.

# The Hoosier Naturalist.

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R. B. TROUSLOT,  
EDITOR AND PROPRIETOR.

R. B. TROUSLOT & CO., PUBLISHERS.

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VALPARAISO, IND., FEBRUARY 1887.

We will send free a calendar and book-mark combined, to all applicants.

THE Ridgeway Ornithological Club, of Chicago, was incorporated in 1884 and has its headquarters at Room 19, 175 Dearborn st.

THE subscription price of the Ornithologist and Oologist has been reduced to one dollar. The NATURALIST and premium with Ornithologist and Oologist, \$1.50.

We have just printed for F. C. Sawyer, of Beauclerc, Florida, a neat, four-page price list of birds' eggs, shells, minerals, curiosities, etc., which he will send on receipt of stamp.

H. M. DOWNS, of Rutland, Vt., sends us one of his blank books, Field Notes on North American Birds. This, in connection with a fountain pen, makes an excellent pocket outfit for recording field notes.

THE March Swiss Cross has many fine illustrations and is replete with the choicest of Natural History literature. Parties subscribing through us at regular rates, \$1.50, will receive THE HOOSIER NATURALIST for one year, free.

J. H. BATTY, of Parkville, N. Y., author of "Practical Taxidermy and Home Decorations," "How to Hunt and Trap," etc., and formerly Taxidermist for the U. S. Government Survey, left on Feb. 25, for his annual trip to the tropics.

THE Audubon Society was founded in New York city Feb. 1886, and has already enrolled on its list over 20,000 members. New York takes the lead in point of numbers, having 64 societies, with over 6,000 members. Indiana comes in away down at the bottom of the list with only five societies and but 139 members, which is not a very brilliant showing for so large a state.

WE are in receipt of the initial number of "The Audubon Magazine," published in the interest of the Audubon society. It comes to us with a tastily decorated cover, bearing a fine engraving of that celebrated naturalist, Audubon. The magazine has twenty-four pages of excellent reading matter, principally introductory and explanatory. The March number promises to be especially interesting and will be mailed to any one for six cents by addressing the Audubon society, No. 40 Park Row, N. Y. The subscription price is but 50 cents per year.

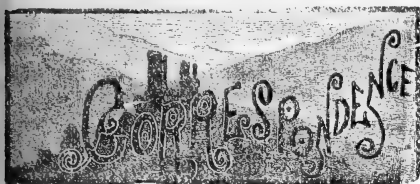
An Ornithological association has been undertaken in Colorado, with the proposed title of the Colorado State Ornithological Association, Chas. F. Morrison, of Fort Lewis, president pro tem.

The object is:

1. To accurately note the date of arrival and departure of our birds.
2. The dates of meeting and breeding of the different species.
3. The botany of the nests and also all interesting facts relating to the science of Ornithology or Oology; copies of these notes to be sent semi-monthly to the president, to be by him placed on record and compiled for publication in such manner as the nature of the work requires.

There are no dues or fees, but it is expected that all parties will bear the simple expense of postage when writing.

Guelf, of the Naturalists' Companion, is sending out a very creditable looking publication. The double number, Dec. and Jan., just at hand, is replete with good things. Such of our readers who do not already take this excellent little magazine should send five cents for a sample copy.



AND

## TAXIDERMY.

### Brief Instructions in Embalming.

As this process appears to be but little known among taxidermists, and as it has advantages over the other methods, the writer offers it to the collectors and taxidermists of the country with the sincere hope that it will be a help in the formation of many valuable collections. To those who have attained a degree of skill in other methods, it will be advisable to use this process with birds that are hard to skin over the head, small birds and such as a greater experience will dictate.

As the old saying goes, "First get your bird", and in shooting birds for specimens it is generally best to shoot at as long a distance and with as fine shot as possible. If a bird is not dead when first taken, the quickest and best way to kill it is by pressing on each side of the body, under the wings, with the thumb and finger. When a bird is first obtained notice in particular the color of the eyes, then open its beak and put a piece of cotton in the throat to prevent moisture or blood exuding from the mouth, and put the bird, head first, in a paper cone, and they are best carried in a fish basket, though a game bag will do. When ready to begin work, spread a paper over the work table with the bird on its back, head to your left. Part the feathers on the breast, and with the knife or scissors, cut into the intestines from just above the lower point of the breast bone, to and into the vent.

Now take a sheet of paper, about the size of the H. N., only of course some other paper, and cut an oval shaped hole in it to correspond in size to the incision in the bird. Brush the feathers back and hold the paper down over the incision with the two fingers of the left hand, and with a hook or forceps remove the intestines. Then with the forceps take small pieces of cotton and twist around inside the body, repeating the operation until it is free from blood and moisture.

Now put in enough of the preservative to thoroughly coat the inside of the abdominal cavity. Next get hold of the skin on the breast and with the scalpel push the flesh away from the skin all around to the legs, press the knee up into sight and opening the flesh put in preservative and draw the leg back. Then with the "loosener," a slender rib of bone or hard wood, separate the skin from the flesh all over the breast, working in the preservative as you proceed. Make sure that there is plenty of preservative in the wings, throat and over the breast.

In medium sized birds, stick the "loosener" into the flesh of the breast and work in the preservative. On the under side of the wing will be found a bare spot, open the skin with the point of the scalpel and insert the preservative, then sew up.

Let the chemicals work awhile and begin on the head, run a thread through the nostrils to hold by, open the mouth and remove the tongue, then with the scissors or scalpel cut a triangular gash into the roof of the mouth; through this opening remove the eyes, wipe the cavities dry with cotton and apply the preservative. If the specimen be a large one, cut into the brain cavity, and remove the brain.

Small birds, should, when possible, have the glass eyes put in with the forceps from the inside, through the mouth then adjust the lids with a pin, and tie the mandibles together with the thread.

Specimens preserved by this method will shrink. To overcome this shrinkage is the object of the sawdust. Take a teaspoon and fill the abdominal cavity with sawdust, packing it in hard with the "loosener." Then take the bird up by the edge of the skin of the breast and put sawdust between the flesh and skin and fill it in evenly and firmly all over the breast. Next take a small thin piece of cotton and with the point of the scalpel press one end of it down between the sawdust and the body, at the tail, then tuck the edge of the cotton under the skin all around to keep the sawdust in. After which draw the skin together with a few stitches and taking the bird up by the feet and bill shake well to free from sawdust and straighten the feathers. Take anne led wire of the right size and cut a piece long enough to reach through the leg, body and head and several inches over, straighten and then sharpen it with the cutting plyers and file, and, with a rota-

ry motion run it into the bottom of the foot, up the inside of the leg, past the heel, to the knee, thence through the body and neck and out at the top of the head. Run another shorter wire through the other leg to the knee, then straighten the leg out nearly at right angles to the body and run the wire almost through the body, now bend the leg back to place and bend at the heel. Then set the bird on a "T" shaped stand and straighten out its wings to see that none of the feathers are crossed, then bring them back to their proper place. Stick a pin in the back, and two in each wing, at the joints, and fastening a thread to the pin in the back, tie the wings lightly into place and give the bird the desired position.

To spread the wings sharpen a wire and run it in at the tip of the wing following the bones down to the body and sticking the wire firmly in the body, then give the wings the desired shape.

To spread the tail sharpen a wire and bend the blunt end of it in the form of a loop, stick into the body and under the tail, spread the tail out over the loop and let it dry in that position.

Birds with large feet should have an incision made in the bottom of the foot, the ligaments removed, and some of the preservative inserted.

Owls' eye balls should not be removed; cut off the top of the eye from the outside with the scissors, wipe out the contents with cotton, coat the inside with the preservative and fill with cotton, putting a little putty over all to keep the eye in place. To put in the eyes when the bird has dried, soak the lids inside and out, for several hours, with wet cotton, till quite soft, then remove the cotton and put in putty colored with lamp-black and bed the eye in this.

To clean feathers when soiled or bloody, wash with a sponge and cold water, then dry with plaster of paris, keeping the feathers in motion till dry.

If you do not wish to stuff your birds the same day they are killed, remove the intestines and put in some of the preservative.

Not many tools are needed for this process, the following will answer: Pliers for bending wire. Wire cutters, File. Scalpel. Scissors. Loosener, also such articles as thread, pins, cotton, fine sawdust, putty, different sizes of wire, etc.

E. L. B.

Durand Wis.

## Wants Every One to Report All White or Albino Specimens Seen During the Winter.

In the January number of the H. N. some one remarked that the wave of snowy owls had passed. Why can't we have a general report of the number taken within the State during the winter. Also a report of the number of Albinos of different kinds taken. Three snowy owls, one albino weasel and mink were taken within the Co. (Decatur), since Dec. 1st.—E. L. G., Adams, Ind.

## Sore Fingers.

A taxidermist here complains of sore fingers caused by getting arsenical paste under his finger nails. Do you know any remedy for this? Have you heard any like complaint from others, or have you ever had this trouble?—C. H. H. Louisville, Ky.

Have experienced the same trouble repeatedly, not only with the use of arsenical soap, but with plain arsenic. Of late years have obviated all detrimental effects from handling these poisons by working in moist dirt, until the finger nails were black with it, after which had no trouble.—Eb.

## Bird Notes from Cleveland.

Noted one woodcock and one logger-head shrike. Robins and bluebirds are common, and song sparrows in spring plumage are also quite common. The tree sparrows have not all left yet; noted several this morning. Early in the morning, sun was shining through the clouds, with a temperature of 45 degrees in the shade. At 9 a. m. a strong, cold wind came up from the N. W., dropping the mercury below freezing and at 3 p. m. it began to snow. At 11 p. m. it was still snowing with 3 in. of snow on the ground.

WM. F. DOERTENBACH.  
Cleveland, O.

## Indiana Academy.

Replying to our letter of inquiry as to date of meeting of the Indiana Academy of Science, Mr. Butler says: "The next meeting of the Indiana Academy of Science will be held May 19 and 20. The place has not been announced but it is very probable it will be at "Shades of Death" in Parke county."



### Specimens Recently Stuffed at the H. N. Office.

The following specimens have recently received our taxidermist's attention:

Three weasels, two white, and one in its usual summer "plumage." The largest of the white ones had a peculiarly pleasing shade of pink over a greater portion of his body; all obtained within five miles of this city during the past month.

Several exchanges are commenting on the abundance of porcupines in Pennsylvania. But the one before us came from New York, from "almost under the nose" of Prof. Ward's Natural Science establishment, located at Rochester, and probably the largest taxidermal institution in the land.

There were two of them and they took refuge in a tree. An axe was brought into play, and the forest monarch was soon laid low, much to the regret, no doubt, of the female porcupine, which was crushed to a shapeless mass. The male was the smallest of the two and was easily secured and then killed by piercing its heart with a pen knife.

It was a prickly job.

An opossum, with one foot nearly amputated by the trap in which it was captured. Its captor reported seeing several others during the winter. The same lad had, with the aid of a ferret, also captured two hundred and fifty rabbits, which were marketed at an average price of 8c. each, dressed.

Our bachelor friend, a professional trapper, recently brought in three great horned owls, two were females and the other a male. Two eggs were secured, which with the female parent, by far the largest of the three birds, are destined to lodge in the Public School Museum.

Feb. 22. poor Mr. Woodchuck came out to look for his shadow, or the sun, but as that celestial orb was loth to appear, Mr. "Chuck" probably remained longer than he had intended and was captured by our "rabbit boy," as he is now called. Just at present he is adorning, in a sleeping attitude, the floor in one corner of Moltz's studio.

We have just received the skins of a man-o'-war bird, and hudsonian curlew, by mail, from R. E. Rachford & Sons, Beaumont, Texas.

A package from Chas. S. McPherson, Boniface, Florida, contained a set of three, first-class, royal tern eggs, obtained by him June 12, 1886.

### How to Become a Good Collector.

To be a good collector, it is necessary to be something more than a good marksman. You must know at what time of day to go out to be most successful, and the localities where you are most likely to find the birds that you are looking for. In the field, you must be all eyes and ears. No thicket should be too dense, no tree too tall for your quick eye to penetrate its foliage; no chirp or rustle too small or weak for your active ear to detect. In short, to be a good collector you must understand wood-craft. Sometimes a bird is seen just disappearing into the underbrush. A very good call, which seldom fails in bringing the bird from its retreat, is made by placing the back of the hand to the lips and sucking. By practice, this may be made to resemble the cries of a wounded bird. Early morning and just before sundown have been found to be the best hours for collecting, although something may be done at any time of day. During the noon hours, birds generally remain hidden in the cool depths of the thickets and woods. Birds are seldom found in the deep forest; but, at the hours mentioned, trees and bushes skirting roads, fields and meadows, will be found teeming with life.—Manton's Taxidermy.

CHAS. COOK reports finding a set of five redheaded woodpecker (*Melanerpes erythrocephalus*) eggs, in a stump, May 19, 1886, "which were one of the oddest sets I ever saw. They measure .75x1.28 and one runt is only .53x.80. Some may think this runt only a downy's egg, but I have reasons to think not."

Dear Mr. Hoosier Naturalist:—Can you or some of your readers tell me what king it was, that, when a child, had the carapace of a turtle for a cradle?

A READER.

R. R. Moffitt, of Battle Ground, Ind., reports receiving from Dakota an albino rabbit. He also orders eyes for a bald eagle.

AM well pleased with H. N., and think that it improves with each number.—P. D. H., Riverside, Cal.

Read what R. M. Gibbs, of Kalamazoo, Mich., has to say, on first inside cover page, on embalming. The Dr. has a superior method which he is selling remarkably cheap.

### What is It?

DURING the summer of 1885, A. J. Gray became the happy possessor of two enormous vertebrae, which were found on Ball Bluff, about three miles from Deadwood, Dakota, together with the greater portion of a skeleton of some extinct surian. The head was two feet wide and three feet long. Of the vertebrae, about seventy-five were found, ranging in length from five inches, near the head, to one and one-half inches at the other extremity. The teeth were about five inches long, pointed, curved and interlocked. He thinks the jaws and some of the teeth are at Mandan, Dakota. Mr. Gray attended the Normal here, last summer, and very generously presented us with one of the vertebrae which we still possess.

### Early Arrivals.

On Sunday morning, Jan. 23, 1887, about 8 o'clock, while sitting at my desk, I heard an unexpected but well known sound, and upon going out into the yard, I saw what I never saw before at that season of the year, viz.: a robin and a redbird in adjoining trees, singing as merrily as in May. The thermometer stood about 55 deg. Have you or your readers ever seen the like before in this latitude? Is it not true that "whence they come and whither they go we know not?"—M. W. B., Macon, Ill.

On Feb. 7, I saw two robins. I think they are rather early arrivals. Since then I have seen others. Blue jays have been here all winter; also bluebirds. I often see cardinal grosbeaks. Feb. 8, I saw a flock of cedar waxwings. Feb. 10, I noticed an English sparrow carrying a straw in its beak to a tree near by. Looking up I saw a nest partly made. A bald eagle was shot about three miles from here, not long ago.—C. M. T., Bedford, Ind.

### Small Land Birds' Skins Identified.

If any readers of the H. N. have small land birds' skins, which they wish identified, I will be pleased to label them and return, gratis, if sender will pay postage.

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### A Correction.

WITH reference to our reply to Charles Cook, in Dec. HOOSIER NATURALIST, Amos Butler writes, "that the pectoral sand-piper is the only bird given in reliable works as jack snipe." Hence the scientific name of jack snipe is *Tringa maculata*. Thanks for calling our attention to the error.

### Exchanges.

I will exchange Gentry's "Life histories of Birds," two volumes, perfect condition, for Hallock's "Sportsman's Gazetteer," or Bogardus' "Field, Cover and Trapshooting," or Greener's "Gun and its development," or Caton's "Deer of America."

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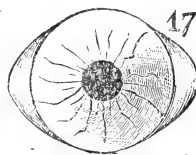
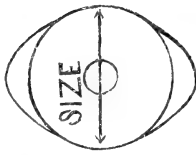
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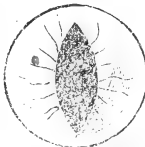
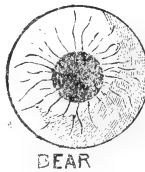
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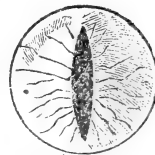
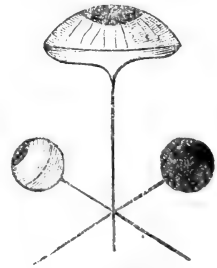
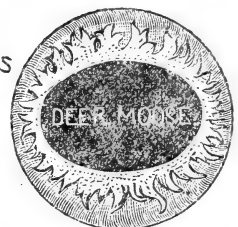
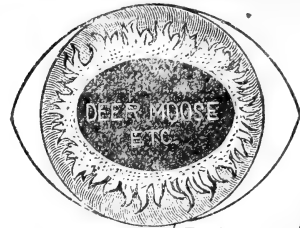
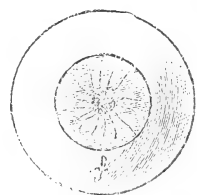
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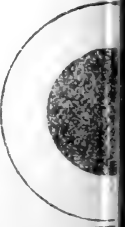
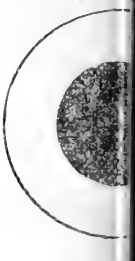
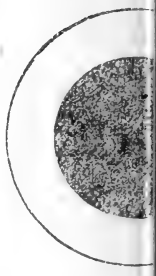
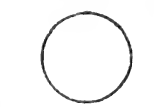
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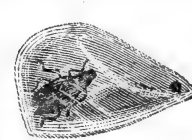


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That, circled endlessly, is faintly tinged  
With royal purple, there God's pencil, dipt  
In living light, repeats immortal love,  
And punctuates it with resplendent stars.

And hark! the crickets chirplast rounde-  
lays,  
For soon the silent-footed frost will  
breathe  
White pall on every summer sight and  
sound.

And yet we know the same Benevolence  
That builds you starry dome, will call  
again  
The laughing Spring and smiling Summer  
forth.

If He renews our world of flowers and  
fruits,  
And wakes again the cricket's dual notes,  
Why should we fear to ford death's silent  
stream?

The sad "Good Night!" foreshows the glad  
"Good Morn!"

—T. G. LA MOILLE.

## THE KING OF SPIDERS.

### Habits of the Tarantula as Noted by a Naturalist.

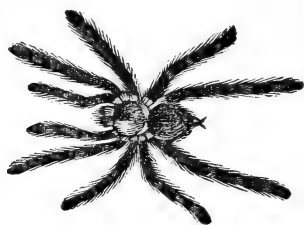
In wandering along the foothills of the Sierras after a rain, on what is called adobe ground, the sharp-eyed observer will sometimes notice a sudden movement of the earth. A seeming leaf or a bit of the soil as large as a silver dollar will drop, quiver or shake. Some little prescience on the part of the walker will enable him to discover the cause of this, and close and careful examination will disclose an oval spot, perhaps an inch and a half across, that seems separated from the surface. Now insert the point of your knife into one side and lift. Surely there is something holding back! Now you gain a quarter of an inch and obtain a glimpse into the black cavern so uncovered of a hairy, uncanny looking object, the tenant you

are trying to evict. Another lift and something gives, and you have opened the door of one of the most cunningly devised and marvelous structures in the entire animal kingdom—the trap door of the king of spiders, one of the commonest but perhaps least known insects of southern California: a huge, hairy fellow, sometimes three inches across, a menace to timid walkers and not particularly appreciated by the professional naturalist, who is supposed to be en rapport with "bugs and things."

The first one I ever met, a blood relation of the above—the *Mygale aricularia* of South America—was on one stormy night in the Gulf Stream, about two hundred miles off Cape Florida. It was blowing fresh, and about midnight a rush overhead brought us on deck, where we found that the steamer was lying to, and near at hand was a dismantled hulk. The latter had been stripped in a hurricane, hailed from Trinidad, South America and was loaded with the choicest preserved fruits. The only living creature aboard was one of these gigantic spiders that, when I rescued it from the bilge the next morning, settled down into a large saucer, its claws or legs reaching to the edge on either side—a most hideous and repulsive object, the large hairy body resembling that of a plethoric mouse.

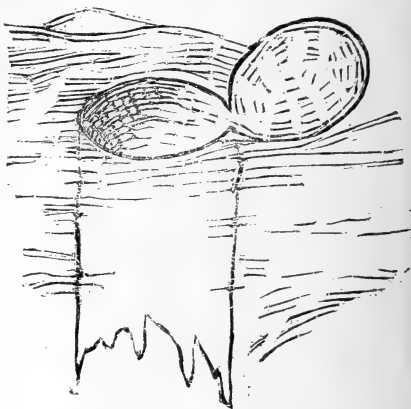
This monster lives in South America, in holes, and is a close ally of the California species. It preys upon quite large animals, birds the size of a sparrow falling victims to its web and mandibles, and altogether it is the most fe-

rocious and dreaded member of the insect tribe. The southern California cousin is equally disagreeable, and as we pull it struggling and ugly from its den, the type of the spider, with its divided body, the abdomen attached by a slender pedicle, is before us. If we penetrate into its interior organization we shall find that it breathes like the scorpion by lungs, as well as air-holes, or trachæ. The infant spider has at first four pairs of feet, like the grim adult that seems all legs, fierce vertical mandibles ending in hollow points, that extend into tubes, through which poison passes from poison reservoirs in the head. They vary as to their lungs and spinnerets; the large trap-door spider has four long sacks, but the number of spinnerets is restricted to two pairs. Such are some of the general features of the great spider, robbed of technical garnishing.



Every move of the *Cteniza californica* as the large trap-door spider is called, in the construction of its nest, is seemingly instigated by wisdom. The selection of locality is in adobe ground, that is as hard as a stone in dry weather, and their method of building their traps cannot but excite the admiration of the observer. Their operations can best be watched at night, but sometimes during the day. When the site is chosen, the worker begins to loosen the earth with its sharp mandibles, carrying it away. If the ground is hard, the work is slow, but by moving in a circle a cavern or well as large as a large thimble will be produced in an hour, and in a day a pit three or four inches deep and an inch in diameter

will be dug. This accomplished, the silk department of the insect is brought into play, and the spinnerets are attached repeatedly to the sides of the well until the interior surface is covered with a wall-paper of the finest silk, perfectly water-tight.



Generally the door is made next, but sometimes before. In forming it, the threads are passed across the opening until a platform is constructed of more or less sustaining power. Upon this the spider heaps bits of adobe, dirt, or other material, working and binding it together with silk until it has a thickness of an eighth of an inch. The silken threads are put on by a rotary motion of the spider's body. Finally the upper portion is sprinkled with powdered adobe, so that the cover is exactly the color of the surrounding ground, and as it has been made to fit the orifice or opening of the well, perfectly, it is water-tight.

The door has perhaps been attached to the sides at several points. These are all severed but one, which is now a perfect hinge, elastic and durable, and if we lift it up on the point of the knife, it will be found that the little worker has provided a patent spring; in other words, the door is so ballasted that it is self-closing. The under-side of the trap-door is now covered with layer after layer of silk, so that it is convex, forming a silken pad, the use of which is ev-

ident when an attempt is made to open the door, the mandibles of the tenant being fastened to it, while the spider braces back with its legs against the walls and holds it down. So effectual is this method of closing the portcullis that often the hinge is torn apart before the spider will release its hold. On one occasion when the door did give, the infuriated insect released its hold and sprang at least twelve inches at the offender, showing a decidedly aggressive nature.



The ferocity of these insect-tigers, however, is displayed when in chase of prey, and the size of the animals they attack is sometimes astonishing. A large one has been seen to attack a young gopher. The latter had tunneled along the edge of an adobe tract, coming up within two or three feet of the door of a large spider's trap, and soon began a series of short and erratic migrations from its hole: each time loading its pouches with bits of grass and weed. The spider, in making its trap, had fastened in a bit of the latter, and when this was pulled out by the gopher, the hinge gave way, and in a second a ball of hair and fur was rolling about, and twelve legs and claws were grasping the air. The spider had rushed out suddenly, and with a quick leap seized the unlucky gopher near the throat, and had evidently penetrated it with its poison mandibles. The gopher, terrified at the assault, at first backed toward its hole, but the pain caused it to defend itself, and the two were soon in a sanguinary struggle: the

spider merely retaining its hold, relying upon its poison, while the gopher struck and pawed the insect with its claws, also endeavoring to use its powerful teeth. The result of this was that the ground for several inches about was soon covered with gopher's blood and spider's hair and legs. Over and over the combatants rolled. Finally, the gopher, rising on its hind legs, tore the spider off and staggered to its hole, where it undoubtedly succumbed.

The poison of these spiders is probably more virulent one time than another, and is absurdly exaggerated in Mexico, where I have been told that to even allow a tarantula to walk over a person during the intense heat of summer would be productive of fatal results. The truth is, that in certain cases the bite might prove fatal, just as people have been killed at the bite of a wasp, the fright and nervous shock acting together to produce such a deadly result. The majority of small birds, mammals and reptiles often succumb to the poison. The great spider does much of its foraging at night; attacking the mole, crickets, mice and various insects that suit its palate.

In some experiments with a mouse and tarantula, this being the popular name in this section, both being placed in a box together, the former showed immediately its distress and terror. Either experience or instinct warned it that the hideous creature was a mortal enemy. The spider remained perfectly quiet, but the unfortunate quadruped lost its head and darted over the hairy insect, whereupon a fierce struggle was commenced. Their movements could not be followed, but in less than three minutes the spider was torn to pieces by the little animal, that a few minutes later dropped upon its side, gasped, and died.

The tarantula has few enemies. Some of the large insectivorous birds (as the butcher-bird) would probably attack it,

but the enemies may practically be confined to a large insect called the tarantula hawk, that seems to be the only insect that knows the "open sesame" of the big spider. The latter, when returning to its trap at full speed, can lift the lid and slide in so suddenly that its disappearance appears almost miraculous. It would seem as though the hawk watched this performance, as it finds the trap with comparative ease, lifts the silk door and darts in, overpowering the spider and killing or paralyzing it. In the body it deposits its eggs. The latter in time hatch, the young tarantula hawks feeding upon the body that has formed their birthplace. Thus the hawk not only destroys the great spider, but converts its body into a storehouse for its eggs and the trap for a home for the coming brood, who, perhaps, have got their first suggestions as to "tarantula hunting."

The method of providing for the future young is found among a large number of this tribe; and when it is remembered that many of them only paralyze their victims, putting them on ice, as it were, so that they will sleep until the eggs that have been deposited in the body are hatched, it will be considered most remarkable.

The tarantula finds one wily victim that it only captures by piecemeal, and that by accident. The little brown lizard that frequents the clearings is sometimes caught napping, and before it can escape the huge spider is upon it, and seizes the slender tail, confident perhaps of a good dinner. But nature has provided the lizard with a method of escape. The first crunch of the mandibles into the delicate skin and the tail is completely whisked off, the cunning lizard darts away and leaving the dry but squirming caudal extremity behind. At times the body of the lizard is seized, when the victim soon ceases its struggles, probably quickly overcome by the virulent poison.

It would seem a difficult feat to tame a tarantula, yet they are susceptible to kind treatment, and will recognize their owners or the ones that feed them, and crawl over his arm without offering to dine thereupon. A green spider that I have had upon my desk until within a few days, that was remarkable for its mimicry, being the exact tint of the stems of the flowers upon which it lived, was so tame that it fed from my hand, taking flies as I provided them.



Scorpions that I have been familiar with in Florida and the tropics in wood exclusively and under board piles, here burrow like crickets, though not so deep, and are almost invariably found under rocks, and sometimes in deep places. The southern California scorpion is not so cosmopolitan as its Florida neighbor. There we found it difficult to keep them out of the house, but here they are not inclined to be domestic. They have the same habits, however, that are remarkable enough. The long tail ends in a sting, that is comparable to the mandible of its cousin, the spider, and is pierced with a tube from which poison flows from a duct. Besides this, the scorpion has two crab-like claws, and thus armed is a match for the largest crickets. To show the power of its poison, in some experiments recently tried I found that a fly was paralyzed almost instantly. As soon as the sting entered a vital part the limbs began to quiver, draw up, and the victim was dead. Crickets lasted longer, but the sting was soon fatal. The scorpion is often a night worker, and in attack seizes the cricket or other insect in its powerful

claws, and if its struggles are not too great tears it apart and devours it. If the victim attempts to escape, the long slender tail is lifted over the back, and with a vicious jerk the deadly sting hurled into the body of the unfortunate.

Among the many fables told of the scorpion that of its committing suicide is perhaps the most familiar. When surrounded by fire the insect has been seen to sting itself; but the action was, in reality, no more with suicidal intent than would be that of a man when tearing his hair in agony. More remarkable than this alleged suicide is the method by which the young scorpions are reared. Soon after birth the latter mount upon the legs, claws and body of the parent, and ride about for some time, gradually feeding upon it; so that by the time they are capable of taking care of themselves the mother of their being has succumbed to their appetites and is a mere empty shell.

One of the most dreaded insects of this country is the centipede: its enormous jaws, seemingly innumerable legs, and powerful muscular development making it a creature to be avoided. They are found under logs and stones, and attain a length of four inches. Quite recently one was been discovered that, after being exposed to the light of the sun, gave out a brilliant light in the dark, the light-emitting secretion, curiously enough, coming off upon the hands of the finder.

C. F. H.

#### Audubon.

Next after Lafayette, two naturalists, Audubon and Agassiz, among foreigners who have been prominent in our country, our people have loved the best. The former of these is known for his studies of birds, and the latter chiefly for his studies of fishes. They were both true lovers of nature, and have done more than all other persons to teach us how to study the life that is going on all about us. Just as Audubon wrote out

very fully and very lovingly the "biographies" of his friends of the woods and the air, telling us everything he could learn of their natures and habits, so his friends have to tell us a great many pleasant things they remember about him and his work. The latest anecdotes told of this man are related by Mr. Charles Lannan, who knew him intimately. From this source we learn that Audubon several times visited Daniel Webster at Marshfield, by special invitation. On one occasion, when there, he was presented with nearly a wagon-load of birds of different kinds, which Mr. Webster had ordered to be killed and brought to him from all along the coast. Among these birds was the identical Canada goose which figures so beautifully in the "Birds of America." Mr. Webster said that the naturalist studied the characteristics of that bird for an entire day, and that he spent three days in making the portrait. It sounds strange to hear of "making the portrait" of a bird, but this was just what Audubon did. He painted one as carefully, in drawing and in coloring, as if a rich patron had been sitting for a likeness. From these portraits were made the illustrations of his work, which was published and sold for one thousand dollars a copy. While the naturalist was wandering about the country, pursuing his studies, he sometimes earned a little money for his daily support by painting the portraits of persons. It is told that once at Natchez a friend came to him to borrow some money, with which to buy a pair of shoes. Audubon did not have the money, but he went to a shoemaker and ordered a pair of shoes for himself and friend, and paid for them by painting the portrait of the cobbler. No further proof is needed of the perseverance of the naturalist than the completion of his work. Some instances are given, however, to show this quality. He once remarked to a friend that, with his wife and sons, he had chased a wren fifteen

hundred miles, and finally caught it at a cost of a thousand dollars. While dining once with a friend in Roxbury, Mass., he chanced to hear the song of a bird he had long been trying to capture. He excused himself, seized his gun, and started after his game, which he did not secure until he reached Cape Cod, and after a tramp of nearly two weeks.

In 1833, Audubon hired, at Boston, a schooner called the Ripley, to make a summer cruise through the Gulf of St. Lawrence to the coast of Labrador. He arranged to pay the captain and owner of the vessel three hundred dollars a month, and as he would be gone from June to November, the trip would cost him about fifteen hundred dollars. He considered himself on a regular hunt for birds by land and sea, and while the captain of the Ripley was forever looking out for breakers, and giving the coast a wide berth, the naturalist was on the lookout for an interview with the birds in their lonely homes.

One day, on his return to the Ripley from an excursion, Audubon found the captain and men busily engaged in repairing their fishing tackle.

"What's the meaning of all this preparation?" he inquired. The captain replied, "When we reach the cod-fish grounds, I intend to pack away a big lot of the fellows in barrels which I have brought for the purpose. "No, sir, that must not be," said Audubon. "I did not come into this region to catch fish, but birds, and no fish are to be taken except for food." He considered himself the financial admiral of that expedition, and he did not relish the idea of having the freedom of his movements interfered with by the salting down of cod-fish.—  
Copied for the H. N. by C. T.

### A Plea for Geology.

No student who really loves and appreciates the pleasure of knowledge, will discover more to interest him, more

to reason over and develop his thoughts upon, more to bestow the real pleasure of partaking in a science, or one that so well repays the leisure devoted to it as geology. It is a science that makes itself all the more conspicuous by the mere craving that the more you know the more the vehemence of your love to know increases, and in its very acquisition you are gaining daily more comprehensive ideas of what the study really is. To know what this earth of ours resembled thousands of years ago; to know the excessive changes undergone in its existence; to know that at one period this great and mighty empire of ours was covered with snow and ice, and with sloping valleys filled with glaciers; to know that at another it was covered with luxuriant forests, with vegetation exuberant in growth, the land overrun with wild animals and exhibiting other features which characterise tropical regions. Yet great as are almost the daily investigations by geologists, of all our natural sciences possibly there is none so little known, and of which so much remains to be disclosed. Even let us compare the records of the present day with those of half a century back, and we are astonished at the important and interesting features, that at one period existed as mere theories, and at the present day exist as facts. Again, when we consider the importance of geology and its indisputable connection not only with the greater majority of our modern sciences, but with our professions, we are naturally surprised that the rising generation do not participate in its pleasures to a greater extent than that which is so observable at the present day. The subject is vast indeed, and in conducting our understanding to its love, is it not much better to endeavor to discover and bring to light those facts which we acquire while on our rambles, inspecting God's beautiful formations, than to seek to gain the same understanding from the works in a library, or listening to lec-



tures, for remembering

Sounds which address the ear are lost, and die  
In one short hour; but that which strikes the eye  
Lives long upon the mind; the faithful sight  
Engraves the knowledge with a beam of light.

The keen sense of observation, too, is in itself a recommendation that this science should be taught and shown to the young more than it is; and indeed, it is an undisputable fact that while botany and entomology receive so much attention, geology receives so little in comparison. We hold, however, that although prejudice, if prejudice it can be called, does in a certain degree exist against it, still it is daily on the increase. We have endeavored to urge one reason why geology should receive more attention than it does, and when the question of the many wonderful pleasures of a knowledge of geological science arises we can do no better than to ask the intending student to spend half an hour in the company of an enthusiast. It has been argued that no two geologists hold the same opinions, and while strictly speaking we emphatically contradict this statement—evidently put forward as an obstacle against its pursuit—we can only say in refuting the argument, that although some may differ over a few points the vast majority are inclined to the same opinions. Cowper touched deeply in his lovely poem "The Task," on nature's pleasures, and in his peculiar way, but in a most magnificent manner at those persons who deem nature but an empty show; and who can doubt that his opinion is not the right one and is not gaining day by day more ground?

Strange! there should be found  
Who self-imprison'd in their proud saloons,  
Denounce the odours of the open field  
For the unscented fictions of the loom;  
Who, satisfied only with pencil'd scenes,  
Prefer to the performance of a God  
The inferior wonders of an artist's hand.  
Science opens up a new fresh wonder ev-

ery day. "It has lengthened life," writes Macaulay; "it has mitigated pain; it has extinguished disease; it has increased the fertility of the soil; it has given new securities; it has furnished arms to the warrior; it has spanned great rivers and estuaries with bridges of form unknown to our fathers; it has guided the thunderbolt innocuously from heaven to earth; it has lighted up the night with the splendour of the day; it has extended the range of human vision; it has multiplied the powers of the human muscles; it has accelerated motion; it has annihilated distance; it has facilitated intercourse, correspondence, all friendly offices, all dispatch of business; it has enabled men to descend to the depths of the sea, to soar into the air, to penetrate securely into the noxious recesses of the earth, to traverse the land in cars which whirl along without horses. These are but a few of its fruits and of its best fruits"—Alfred J. Weyman in *The Garner and Science Recorders' Journal*.

### Eagles' Home.

"Green-glaring glaciers; purple clouds of pine;  
White walls of ever-roaring cataracts;  
Blue thunder drifting over thirsty tracts;  
The homes of eagles."

### Bird Song.

The sweetest music of nature, comes from our pretty feathered friends, the birds. Their "wood-notes wild" gladden the heart; their song makes the sunshine the brighter.

All literature, of all countries, of all ages, as far back as we have any record of time, has something to say of the birds. Mary Helen Boodey wrote:

The woodland hath its minstrels sweet,  
That fill the forest aisles with joy;  
And oft we seek their loved retreat,  
To listen to the singers coy.

### About Blackbirds.

A wide-awake, noisy, impudent fellow is the blackbird. He comes quite early in the spring, and as you pass some spreading tree in the pasture, or skirt along the willow copse by the meadow, you see that he has brought with him his whole family, and all his acquaintances. The brush is black with them, and they all seem in earnest debate, rising, and perching, and chattering incessantly; and then, all on a sudden, away flies the whole flock. You knew they were countless, but, as they fly, it seems as if the largest half of them had been in ambush, or had sprung out of the ground.

Like the "crane and the swallow," the blackbirds "know the time of their coming." Before they leave the southern states they gather in numbers which are almost incredible. On one occasion, in the month of January, Wilson says he met in Virginia, on the Roanoke river, a prodigious army of these birds. They rose from the surrounding fields with a noise like thunder, and descending on the length of road before him, covered it and the fences completely with black; when they again arose, and, after a few circles, descending on the skirts of the high timbered woods, at that time destitute of leaves, they produced a very singular and striking effect; all the trees for a considerable distance, from the tops to the lowest branches, seemed as if hung in mourning; the notes and screaming of the birds meanwhile resembling the distant sound of a great cataract, but in more musical cadence, swelling and dying away in the air, according to the fluctuation of the breeze.

This bird is known among us as the common crow blackbird, and is often called by naturalists the purple grackle, *Quiscalus quiscula*. At a distance his plumage appears jet black, but on a nearer view it is found to be a very dark purplish green, with glossy reflections of steel blue, dark velvet, and me-

tallic copper. The male is about twelve inches long, and eighteen in expanse of wing. The female is somewhat smaller, but similar in color.

The blackbird feeds either upon seeds or insects. In the spring he frequents swamps and meadows, and follows the furrows of the plow, even scratching in the ground for grubs and other insects which would do the farmer much harm. But when the tiny green shoots of corn peep through the soil, he knows very well that there are nice soft grains beneath, and so, after his own fashion, he takes his pay for the grubs he has slain. When the corn is in the milk the blackbirds descend again upon the fields like a blackening, sweeping tempest. They strip off the husk as dexterously as if by the hand of man, and having laid bare the corn, leave little but the cobs. For these reasons it is hardly strange that the farmers think the blackbird a pest, and make him an outlaw, in peril from the pelting of every idle, roving boy.

Most small birds are afraid of the larger kinds, and if a hawk or eagle show himself, they either hide themselves or try to drive him away, relying upon force of numbers or swiftness of wing. The Blackbird, however, is a curious exception, for it actually builds its nest in company with the osprey, or fish-hawk. The nest of the osprey is a large mass of sticks, grass, leaves and similar materials. The foundation is made of sticks as large as broom-handles, and two or three feet long; on these similar sticks are piled, until the heap is some three or four feet high. These are interwoven with cornstalks, straw, seaweed, or leaves, the whole mass being enough to load a cart. The birds occupy the nest year after year, even until the tree decays and falls to the ground.

The blackbirds build their nests in the spaces between the sticks which form the nest of the osprey. There, like vassals round the castle of their chief, they live and rear their young. Wilson found no less than four such nests about the nest of one osprey, and a fifth on the nearest branch of a neighboring tree. Of course all the blackbirds can not build in ospreys' nests. Most occupy tall trees, generally in companies of from fifteen to twenty. The nests are made of mud, roots and grass, and are lined with fine, dry grass and horse-hair; they are about four inches deep, and contain five or six dull green eggs, spotted with olive.—Ceecil's Book of Birds.

### What Becomes of Deer's Horns?

Mr. A. S. Fuller, the well-known author, writes in the American Agriculturist for April: "What becomes of deer-horns? is often asked of persons residing in regions where deer are plentiful, but it is rarely satisfactorily answered. That the horns are shed annually, there are no good reasons for doubting, for it is a well established fact: but that the horns are rarely found is also quite as true, as stated by Mr. Yoder in the American Agriculturist for February. I well remember looking for shed deer horns, many years ago, in the woods of Wisconsin, and during one of these rambles, extending over only a few hours, I saw fifty-seven very lively deer, some with very handsome antlers, but failed to find a vestige of an old horn. Upon inquiring of old hunters, who were supposed to know all about the habits of deer, I was informed that when a buck dropped a horn he immediately dug a hole in the ground and buried it out of sight. Upon further investigation, however, I was unable to find a person who ever saw a deer performing the operation, or one who ever found a horn that had been buried by its owner or any other similar animal. But in late years I have had several opportunities to learn where some of the naturally shed deer horns go to, if not all of them. The deer shed their horns in spring, and they no sooner fall to the ground than the wood mice attack them, and they disappear before the teeth of these little rodents so quickly that a few weeks are sufficient to obliterate every vestige of the noblest pair of antlers. Even the squirrels like to gnaw the deer horns and fresh bones of various kinds, and it is this natural or depraved taste that makes our common red squirrels rob birds' nests when the young are nearly full grown; for so far as I have observed, they devour the feet and legs of the birds only. I have frequently made them drop the young birds they were slowly torturing, and have al-

ways found that they were eating the feet and legs, perhaps because these parts had a nutty flavor."

### Fish Ponds.

Carp culture seems destined to become a greater industry in the United States than it has ever been in Germany. The earnest efforts of the fish commissioners as to their cultivation have met with gratifying success. Fish have been distributed to every state and territory, and with successful result in nearly all. In a recently published report of the commissioner of fish and fisheries, more than a thousand answers are reported from persons to whom carp have been distributed and to whom inquiries were addressed by the commissioner. These answers set forth, far better than any statement could, the great benefit which accrues to practical men from carp cultivation. The fishes appear to have flourished in almost every climate and under all sorts of conditions. The only failures recorded are where the precautions advised by the fish commissioners, to rid the pond of the natural enemies of the young carp, have been neglected. As soon as the carp grow to a moderate size they appear to be able to take care of themselves, and, consequently, it is only necessary to take particular care of the eggs and the very young to insure a good return. Considering the very small amount of labor necessary to take care of the fishes, the rapidity of their growth and multiplication under favorable circumstances, and their value as food, it seems surprising that carp culture is not more general than it is. By stocking a small pond, and giving the fishes a little food occasionally, the farmer in a few years could have a constant supply of excellent food for his table of a healthy character, and if his premises permitted larger room for the cultivation, he could make from the now wasted ponds one of the most profitable crops on his farm.—Trustees' Trade Journal.

# GEOLOGY.

This department is conducted by W. R. Lighton, Leavenworth, Kan. All inquiries and communications under this head should be addressed to him.

## Economic Geology.

### THIRD PAPER—BUILDING MATERIALS ETC.

In this paper I shall speak of no materials in particular, but shall endeavor to impress upon you one matter which is of the greatest importance in the study of Geology, and indeed, all subjects, scientific or otherwise, and that is the necessity of making a thorough system of your work—of so reducing it as to bring it within the operation of principles and laws.

A simple and single fact, which is not recognized in its application to some general principle, only serves to encumber the mind. This method of classification must be adopted to remedy the difficulty; the facts which are acquired must be observed in the relationships which they bear to each other, and so to the principles above them and governing them. If you have not been in the habit of adopting this method of pursuing your studies you will be surprised at finding that instead of making your work more difficult, cumbrous and wearying, it will vastly reduce your labors, and it will also be a matter of great surprise to you to find what an assistance this simple method of classification will be to your memory. It is always true that facts which are standing alone and disconnected with each other and previously acquired knowledge, are most difficult to remember, while if their relationships are observed this difficulty will, in great measure, disappear. Aside from this, it may be stated that no knowledge can be of practical value until it is reduced to system. For instance: The mineralogist does not make an analysis of a mineral simply from a curiosity which he has to satisfy himself of

the composition. He would then be scarcely better than the small boy who dissects his sister's doll from a mere idle inquisitiveness. He analyzes species that he may come to an understanding of general principles governing the science. So it should be with students in all branches.

The Geologist, though, must go further than the mineralogist; he must do more than analyze and determine the specific characters of his specimens. It is necessary in the extreme that he look at general rules and make broad application of his knowledge.

Suppose, for instance, that you have found a specimen of coal which upon the tests given in the first paper, proves to be of value. Now, instead of contenting yourself with this knowledge, you should make it simply the foundation for your future investigation. Note very carefully the physical character of the coal, and the thickness of the vein. Make a careful study of the rocks, clay, etc., which occur both above and below the vein, observing their physical structure, color, and the fossils which occur in each, and, if possible, ascertain their chemical composition. You will readily see the necessity of this, for in the same neighborhood these rocks occur, as a rule, in the same relations to each other, and there may be many other exposures of the same *series* near by without the coal appearing directly upon the surface.

Suppose you have observed that immediately above the coal there is a stratum of shale of a certain character, containing certain species of fossils. Now, if in that locality you should find the same shale exposed by itself, you may safely suppose that the vein of coal is lying immediately below it. So if the second or third stratum above the coal be observed you may just as safely infer that the coal lies below. This is not a rule which is never-failing, for many times veins will "thin out," as the geolo-

it says, and disappear within a short distance, but the rule is sufficiently certain to base your calculations upon. There are frequently several veins of coal in the same neighborhood, and of course in this case the coal could not be expected to bear the same relation to the shales and other rocks in all instances. It is necessary to observe the position of each vein.

These suggestions apply to the study of building materials with equal force. For example, you may have a bed of sandstone which you have found to be an excellent material for certain uses in the construction of buildings. The sandstone contains probably no fossils and therefore may present no features which distinguish it from many much less valuable materials, but just above it you have found a bed of shale which contains several species of fossils in considerable abundance, and below it is a bed of limestone which is also easily recognizable by its fossils and physical structure. Now, if in the same locality you should discover another exposure of sandstone with the same beds of limestone and shale above and below it, you could be certain that the sandstone was the same material which you had determined to be of value before. And if you found the shale exposed in one place, your former observations would lead you to the belief that the sandstone also existed beneath it.

I could multiply illustrations indefinitely, but these few will be amply sufficient to prove the truth of the statement which is contained in the first paragraph.

W. R. L.

### The Rabbit Beat the Dog.

Between hare and hound there is all the difference between weakness and strength—and, as the world goes, the weaker usually gets the worst of it. The hunter, however, has given cunning to the weaker party, and this sometimes makes him more than a match for his pursuer.

A laughable instance of this occurred awhile ago at a rabbit hunt near Hoboken, N. J.

The hound started the "cottontail" in a piece of short brush on a side-hill. The hunter could witness the race at a great distance and soon saw the rabbit making a circle. As he appeared emerging from the brush he was seen to stop suddenly. On rushed the hound and as he lowered his head to seize the little animal, the rabbit gave a spring to one side and the dog doubled up like a ball. While he was letting himself out the rabbit was making time on the back track.

The hound was soon in full pursuit again, but the rabbit led the dog to where two saplings grew close together from an old root. He then stopped as before and waited till the dog was almost upon him, when he leaped between the two saplings, while the dog attempted to follow. But there was barely room for the rabbit, and the hound was caught in the crotch and badly injured. The rabbit turned and looked at his enemy a minute and was soon lost in the thicket. The dog started immediately for home, and no amount of coaxing could induce him to continue the hunt.—Good Cheer.

### Arkansas Insects.

The last Arkansas Traveler tells a story of a citizen of the State who, while on board a steamer on the Mississippi, was asked by a gentleman "whether the raising of stock in Arkansas was attended with much difficulty or expense." "Oh, yes stranger, they suffer much from insects." "Insects! Why, what kind of insects, pray?" "Why, bears, catamounts, wolves and sich like insects."

Eight hundred men recently spent all one day chasing foxes in Champaign county, Illinois, and got one poor little red specimen.

The silk culture of Mississippi is increasing very rapidly, and promises larger development in the future.

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SHOULD any of our readers be in need of printed stationery, would be pleased to have you examine our prices elsewhere.

A SWAN was recently shot near here. It was one of a flock of eight which was flying quite low.

The following measures were taken: Ext. 88½ inches; wing, 40¼ in.; length, 54 in.; tail, 9¼ in.

We are just informed that The Naturalists' Companion is no more. Its gentlemanly publisher will probably arrange with some other magazine, so that his subscribers will lose nothing by the suspension.

SEVERAL subscriptions expire with this issue. We would be happy to have

a renewal from each one and trust you sufficiently appreciate our efforts to supply you with a readable Natural History Journal at a low price, to comply and at once, and forward the subscription price.

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### English as She Is Taught.

Mark Twain contributes to the April Century under the above title some examples of the curious answers made by pupils in our public schools. We quote a few as follows:

"*Aborigines*: a system of mountains.

*Capillary*, a little caterpillar.

*Corniferous*, rocks in which fossil corn is found.

*Parasite*, a kind of umbrella.

And here—with "zoological" and "geological" in his mind, but not ready to his tongue—the small scholar has innocently gone and let out a couple of secrets which ought never to have been divulged in any circumstances:

"There are a good many donkeys in theological gardens.

Some of the best fossils are found in theological cabinets."

### The Nightingale.

One of the most celebrated of song-birds is the nightingale, or night-singer. It is migratory.

This famous bird is common in nearly all parts of Europe. It haunts woods, thickets and gardens. It migrates in winter into Egypt and Syria. It has been seen among the willows of Jordan and the olive-trees of Judea. In no parts of Europe is it more common than in Spain or Italy; but even in these southern regions the bird is migratory.

The nightingale is shy in its habits. Its nest is placed low and hidden from view. Its eggs, five in number, are of an olive-brown. Its food consists of insects. In color it is brown with a reddish tinge on the back and tail.

As a songster, the bird is unsurpassed. Though its notes are heard at intervals during the day, they are poured forth in their greatest perfection on quiet evenings, an hour or two after sunset; and when the moon is nearly full, and the weather is serene, the melodious song of the nightingale may be heard till midnight.—Nursery.

READ "Book Notice" on page 120. We think you will be interested by so doing.

## Suggestions for Forming Collections of Birds' Eggs.

BY ALFRED NEWTON.

### GENERAL REMARKS.

The collection of birds' eggs for scientific purposes requires far more discrimination than the collecting of specimens in almost any other branch of natural history. While the botanist, and, generally speaking, the zoologist, at home is satisfied as long as he receives the specimens in good condition, with labels attached giving a few concise particulars of when and where they were obtained, it should be always borne in mind that to the oologist, such facts, and even the specimens themselves, are of very slight value unless accompanied by a statement of other circumstances which will carry conviction that the species to which the eggs belong has been accurately identified, and the specimens subsequently carefully authenticated. Consequently precision in the identification of his specimens should be the principal object of an egg-collector, to attain which all others must give way. There are perhaps few districts in the world, and certainly no regions of any extent, whose faunas are so well known that the most rigid identification may be dispensed with. Next to identifying his specimens, the most important duty of an egg-collector is to authenticate them by marking them in some manner and on some regular system as will leave no doubt, as long as they exist, of their having been obtained by him, and of the degree of identification to which they were subjected. Neatness in the mode of emptying the shells of their contents, and other similar matters, are much to be commended; they render the specimens more fitted for the cabinet. But the main points to be attended to, as being those by which science can alone be benefitted, are identification and authentication.

### IDENTIFICATION.

Of course the most satisfactory, and often the simplest, way of identifying the species to which a nest of eggs, when found, belong, is to obtain one of the parents, by shooting, snaring or trapping. But it sometimes, in practice, happens that this is found to be difficult, from one cause or another—such as the wary instincts of the birds, or the necessities of his position compelling the traveler to lose no time, or the scarcity of the species making him unwilling to destroy the individuals. In any of these cases there is nothing to be done but to make as careful an examination as circumstances will admit of the precise situation of the nest, the materials of which it is composed (supposing that the collector cannot bring it away with him), and accurately to survey the surrounding locality, to observe by what species it is frequented; all the particulars of which examination and survey should be fully noted down at the earliest opportunity possible. Should, however, either or both the birds be killed, they should be skinned, or at least some characteristic part of each preserved, and duly labelled to correspond with the inscriptions subsequently put upon the eggs, and *always* with a reference to the collector's journal or note-book, wherein fuller details may be found.

The oologist is especially warned not to be misled by the mere fact of seeing birds around or near the nests. Many of the crow family (*Corvidæ*) are great eaters of eggs, and mistakes are known to have originated from birds of that kind being seen near nests of which they were certainly not the owners. Others, such as the titmice (*Paridae*), though not plunderers, obtain their food by incessantly seeking it even in the very localities where many species build. It often happens, also, that two different birds have their nests situated very close to one another; and if they be allied species, the collector may be easily deceiv-



ed. Thus, it has come to the writer's knowledge that the dunlin (*Tringa alpina*) and the purple sandpiper (*Tringa moritima*) have had their nests only a few feet apart. At first a pair of the latter only were seen, which by their actions betrayed their uneasiness. A short search discovered a nest with four eggs. The observer was one of the best practical oologists then living, and his eye at once saw that it was not the nest which he wanted; but a less experienced man would doubtless have immediately concluded that he had found the eggs of the rarer species. Indeed it may, generally speaking, be said of most birds, that whenever they have nests of their own they are also acquainted with those of their neighbors, which by their actions they will often betray to the collector who may be patiently watching them. Birds, again, will occasionally lay their eggs—accidentally, as it were—in the nests of other species, even when they are not of a parasitic nature, as the Old World cuckoos (*Cuculus*, *Eudynamis* and *Oxylophus*), or the cow blackbird (*Molothrus ater*); thus eggs of the eider duck (*Somateria mollissima*) have been found in the nest of a gull (*Larus*), and other similar cases are on record, in some of which, from the species being nearly allied, confusion might easily have arisen, though at the time, no doubt may have occurred in the collector's mind.

It would be impossible in this paper to treat of the various methods which may be successfully employed to obtain the birds to whom a nest belongs, and, in fact, these methods can generally be learned only by experience. It is sufficient to indicate here the use of traps, snares, hingles, or bird-lime, in cases where the individuals are too shy to admit of being shot by the gun or rifle. Much may often be gathered by the collector from the practice of the natives, especially if they be savages, or half civilized. In like manner it would too much extend these suggestions to give a detailed account of the different ways in which the nests of birds are to be found. The experience of a single season is to most men worth a whole volume that might be written on the subject. Nevertheless, a few hints are given further on, which might not occur to the beginner.

[TO BE CONTINUED.]



## AND TAXIDERM.

Eubanks, Ky., March 30, 1887.

Mr. Editor:—On the 24th of February, about 1 o'clock in the afternoon, the writer shot a very good specimen of the herring gull (*Larus argentatus*) in an old field near this place.

When first discovered it was sitting quietly in the sage grass. When approached it did not try to fly until we were within ten or twelve yards of it, when it arose and flew a short distance, again alighting in the dry grass. When shot and more closely examined, every appearance indicated that the bird was extremely exhausted.

It measured exactly five feet from tip to tip of the expanded wings, and twenty-nine and one half inches from the tip of the bill to the end of the tail.

The appearance of a gull in the mountains at such a distance from any large body of water was a source of considerable surprise to us, as we have never seen nor heard of one in this region before. Can any one explain the phenomenon?

J. B. L.

### Cleveland Notes.

March 10, one white-throated sparrow.

March 20, one field sparrow, one fox sparrow, a flock of about 150 black snow-birds flying northward through the woods. Red-winged blackbirds and purple grackles are quite common.

March 24, purple grackles are common. Large flock of crows passed over the city flying westward along the lake shore. Three red-tailed hawks flying southwest and later two sharp spurred hawks flying southeast.

W. T. D.

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## Essay in Natural History.

BY LITTLE JOHNNY.

## THE CRICKET.

The cricket don't need so much natural hissoy as the ephalant, 'cause he is so much littler. He sings on the harth, but it is more like squeekin' and he can jump when you catch him. The cricket and the tea kettle sings to'gether, and their fokes in stories is happy, but give me a fiddle. Their is a game called cricket, but it isnt like the real cricket a bit, 'cause it aint spy, and hurts your legs if you don't tie 'em up like sore fingers.

When the cricket is asittin' still and mindin' his own bisnuiss he looks like he was balancin' hisself between two step ladders.

Crickets is kangaroos in a former stait of exsistence.—Fun.

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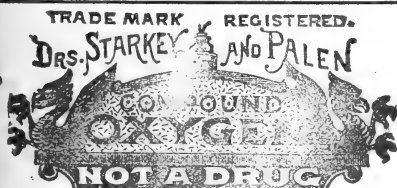
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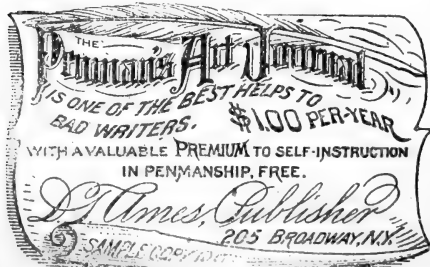
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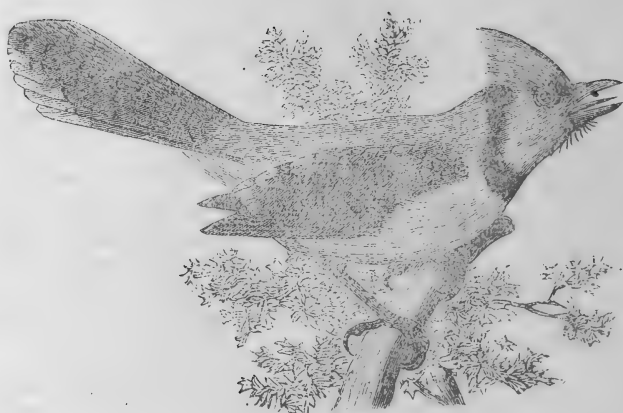
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# THE HOOSIER NATURALIST.

VOL. II. No. 9. VALPARAISO, IND., APRIL, 1887. } PUBLISHED MONTHLY  
60c. PER YEAR.

## EAGLES FOUND IN INDIANA.

**The Various Species of the Majestic Bird That Haunt this State.—A Natural Scientist's Observations Regarding Their Rapacity, Wanton Cruelty, Cunning and Other Characteristics.**

"A great many persons," said Professor Colett, "who are considered well informed, seem to think there are no eagles in Indiana. The truth is, we have quite a number, a great many more than we need. It was that sensible old utilitarian, Benjamin Franklin, who suggested the turkey as a national bird, objecting to the proud eagle as unrepublishing, because he had been appropriated the emblem of sovereignty by a number of monarchical powers. The poet and the seer have given their finest fancies and inspirations to honor this bird, which, after all, is the most cruel of all feathered robbers. Some times he is no different than the buzzard, and will gorge himself with the vilest carrion. As to his cruelty, he takes special delight in attacking some of the most harmless and innocent animals. He will pick out the eyes of lambs, apparently more for torture than for food. I have never heard a case in Indiana where man, woman or child was attacked by an eagle. In my neighborhood, in Vermillion county, I have known an eagle to tear out the

eyes of a dozen lambs, frightening the ewes and keeping them at a distance by flapping their wings. I never knew an eagle to attack an animal that was capable of resistance. Not that I mean to say he is cowardly, but he is wary. The eagle, as commonly known, is a solitary, melancholy bird. He is usually seen alone in his flights, soaring at a great height, because his eye is capable of measuring great distances. Their nests are built of coarse sticks or brush, not well put together, on the top of an inaccessible rock, or some monarch of the forest. It is commonly believed that the occupation of such a tree for the nest of an eagle causes its death. Hence, in stories and in pictures, the eagle-nest tree is always shown as a dead tree. It is not true that the eagle's occupancy kills the tree, but he chooses a dead or leafless tree for purposes of observation. Besides, the eggs in the nest may have enemies, not merely animals but birds, like jays and crows.

"I have little doubt that persons occasionally mistake them for other birds, the eagle being so rare. Perhaps, however, many of our oldest inhabitants have not seen more than one or two in a lifetime. It seems that the eagle, like the wild red man, requires a large hunting ground. By a sort of arrangement, a territory of five or ten miles square, is assigned to a pair of eagles, though they do not sail in company. They always keep the

same territory, and the same nesting place. For a long period, on the Wabash, below Montezuma, there was a well-known eagle tree. There was another above the mouth of Sugar creek, in Parke county, and another near the mouth of Coal creek; in Fountain county. I might mention more, but I cannot now readily call them to mind. We have in Indiana the bald and the golden eagles, the former the more common, the latter extremely rare. Frequently, the females and young males of silvered or bald eagles are mistaken for the golden and other species. All males of the bald family are ornamented with a white crest, after attaining the age of two years. Before that they cannot readily be distinguished from the females in their more somber plumage.

For many years I had seen but few eagles, so I was somewhat surprised to learn that on an adjoining farm to my own, in Vermillion county, Indiana, within two miles of my residence, there was a bald eagle assembly—that it was held there every night, and was the center to which eagles came from a distance of more than fifty miles in all directions, for a flight of fifty miles or more is nothing to this mighty winged bird. They came in the dusk of evening, and doubtless met for counsel and direction more than mere companionship. As the birds came in, one after another, there would be shrieks of welcome and noises very startling to a listener. This national congress, as I call it, has existed for a period that the mind of man runneth not to the contrary. The roosts are on lofty bare-limbed sycamores in a very solitary place. By actual count these eagles numbered fifty-three, of which twenty-four were adult males and the remainder either females or males that had not reached the age of wearing the white crest.

"Why don't eagles increase in number?" Well, everybody who gets a chance to kill an eagle does so. Another reason is that their nests are so badly built as not

to furnish security to eggs in case of storm, and they are thrown down and the eggs broken. I noticed in a paper that an eagle had recently been killed in Greene county, I think it was, that measured eleven feet four inches from tip to tip of its wings. The largest of which I have personal knowledge was ten feet nine inches from tip to tip.

I had a wounded eagle for a pet for some time; he had a broken wing and could not fly. He would hold a live chicken with one set of claws and tear it into shreds. He was turned loose in a garden and fed regularly every day. Cats, opossums and coons kept at a respectful distance from the wounded king of the air, and it was unlucky to any strange dog to get within his majesty's clutch. He never could escape without leaving a slight testimonial in the way of hair or hide behind him. The brilliancy of the eye of the eagle when angry is wonderful. It is dazzling and magnificent in its fury.—Indianapolis Journal.

### A Day with the Orchids.

Saturday, July 3, 1886., dawned bright and clear, and the prospects were that we should have a very pleasant day. Having arranged to make a botanical excursion with a friend, we were soon prepared for the journey.

We were bound for one of the finest botanizing grounds in the vicinity of Peekskill, N. Y. Just across the Hudson river from that place there is, within the radius of a few miles, such a variety of soil, exposure and general surroundings as is seldom met with. It is indeed a "Botanists' Paradise." We have here, first, the shore of the salt waters of the Hudson. Following up a creek which empties into the river, we have the shores of a fresh body of water. Around this creek are many swamps, bogs and meadows, and back of these marshy lands rise several hills of from ten to fourteen hundred feet in altitude. Among these hills are several trout streams, whose rocky



banks harbor many spring flowers, such as can be found in no other situation.

We are especially bent, to-day, on collecting the orchids of this region, though, of course, we will gladly appropriate any other plant that, perchance, may catch our eye.

After a pleasant row in the brisk morning air, we disembark on the shores of the creek, and after a short rest begin our search. We have gone but a short distance, when we are attracted by two conspicuous flowers in the meadow. After a somewhat dangerous walk over the bog, we reach an abundance of both plants. They both prove to be orchids. The first is the *Calopogon pulchellus*, or grass pink, a quite common but beautiful orchid found in wet meadows. Its scape bears several showy purple flowers. Its companion is the *Pogonia ophioglossoides*, or common pogonia. At a distance, this might be taken for the grass pink; but the pogonia's scape only bears one flower, which is very large and sweet scented, and of a pale, purple color. This plant, though found in the same kind of soil, is not so abundant as the former. Having obtained an abundant supply of specimens, we soon enter a large bog, covered with a thick growth of ferns. In the early spring, this bog is one mass of yellow, occasioned by the great abundance of the marsh marigold (*Caltha palustris*) growing there. Here we hunt long but unsuccessfully for the *Cypripedium spectabile*, which we hope to find thriving here. But we are, in a measure, rewarded by the discovery of another member of the orchid family. It was hardly out yet, but the flowers opened a few days later, in water and we found it was the *Habenaria pryncodes*, commonly known as the purple fringed orchid. The dark green leaves grow smaller as they ascend the stem, and it terminates in a large and full spike of handsome and fragrant flowers. The flowers are light purple, and a large, well rounded spike of the plant, presents

an exquisite appearance. We found this orchid quite abundantly later in the season.

Having arrived at the mouth of one of the brooks, we follow its course and soon come across a large number of plants of the *Orchis spectabilis*, popularly called the showy orchis. It is a pretty little two-leaved plant sending up an angled scape, bearing several showy flowers. Though 'tis late to find them in bloom, yet we discover among the many plants a few bunches of its pretty blossoms. It is quite common in the vicinity.

Further along the bank of the stream we discover one solitary specimen of the Tuay blade, or *Liparis lilifolia*, looking something like the showy orchis, though much more delicate. It is also late for this and we find the scape of tiny flowers already withered and dried. Nevertheless it must be taken, as it is quite rare in this vicinity.

The morning is about spent, and we strike over the hills to reach the Hudson. Nearly at the top of the hill we discover several fine specimens of the *Cypripedium pubescens*, the large, yellow lady slipper. The *Cypripedium* constitutes one of the grandest genera of the orchid family, and we are always eager to discover one of the "cyps" as we call them. This is about the only place in the vicinity that *C. pubescens* is found. On the way down towards the river, almost buried in the leaves, we find a few plants, grouped together, of the *Aplectrum hyemale*, or putty root, sometimes called Adam and Eve. This is a rare orchid, and we are delighted over our discovery. There is only one thing to mar our pleasure—there are no flowers on the specimen. But we are exceedingly glad to know it grows here and collect all the specimens to transplant. The peculiarity of this plant is the large corn it develops, a new one appearing each year. It only has one leaf.

While recrossing the river, in the afternoon, we stop at a point and visit a

pine grove, where the moccasin flower, *Cypripedium acaule* grows in abundance. These plants bloom in May, but we found several pretty specimens still in flower.

We had spent a most delightful day and had collected a great many plants, some of which were entirely new. We had taken many interesting and valuable notes. But, besides all this, we had indeed been successful in our quest for orchids. We had found eight different species, two of which were new to us, and six we had never found in that place before. We felt well repaid for our journey and trouble and hoped soon to spend another day among the orchids of that vicinity.

Geo. E. Briggs.

### Suggestions for Forming Collections of Birds' Eggs.

BY ALFRED NEWTON.

(Continued from Page 119.)

#### AUTHENTICATION.

The most complete method of authenticating eggs is that of writing in ink on their shells, not only the name of the species to which each belongs, but also, as far as the space will admit, as many particulars relating to the amount of identification to which the specimen was subjected, the locality where, date when, and name of the person by whom they were taken, *adding always* a reference to the Journal or note-book of the collector, wherein *fuller details* may be given. It is advisable to do this on some regular system, and the following method is suggested as one that has already been found to work well in practice. The *scientific names only* to be used, except with a mark of doubt or within brackets, when the specimens have *really been satisfactorily identified*; and if the identification has been made by obtaining one or both of the parent birds, a memorandum of the fact to be added, thus: "Both birds snared;" "Bird

shot;" or, in smaller space, "Bd. st." If the identification has been effected only by obtaining a good view of the birds, the fact should be stated thus: "Bird well seen," "Bird seen." or "Bd. sn.," as the case may be. For eggs not taken by the collector himself, but brought in by natives, or persons not having a knowledge of ornithology, the *local name* or the *name applied by the finder* should *only* be used, unless indeed it requires interpretation, when the scientific name may be added, but *always within brackets*, thus: "Toogle-aiah (*Squatarole helvetica*);" the necessary particulars relating to the capture and identification being added. Eggs found by the collector, and *not* identified by him, but the origin of which he has reason to think he knows, may be inscribed with the common English name of the species to which he refers them; or if it has no such appellation, then the scientific name may be used, but in that case *always with a note of interrogation (?)* after it, or *else* the words "Not identified." If the collector prefers it, many of these particulars may be inscribed symbolically or in short-hand, but *never unless* the system used has previously been agreed upon with persons at home, and it be known that they have a key to it. *Each specimen should bear an inscription*; those from the same nest may be inscribed; but different nests, especially of the same or nearly allied species, should never be so marked that confusion can possibly arise. It is desirable to mark temporarily with a *pencil* each egg as it is obtained; but the permanent inscription, which should always be in ink, should be deferred until after the egg has been emptied. The number terminating the inscription in all cases referring to the page of the collector's note-book, wherein full details will be found, and the words or letters preceding the number serving to distinguish between different collectors, no two of whom ought to employ the same. (The initial

letter of the collector's name, prefixed to the number, will often be sufficient.)

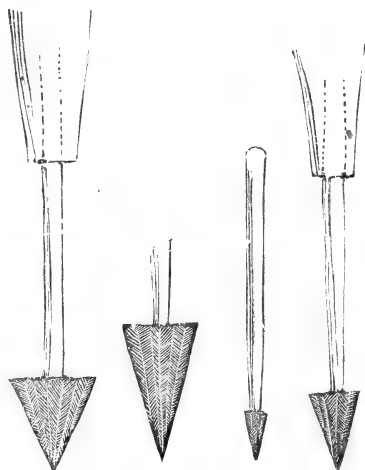
### PREPARATION OF SPECIMENS.

Eggs are emptied, with the least amount of trouble, at *one* hole, which should be drilled in the *side* with such an instrument as shown in the sketches (figs. 1, 2 and 3). The hole should, of course, be proportioned to the size of the egg and the amount of incubation it has undergone. Eggs that are hard sat upon are more easily blown by being kept a few days, but the operation must not be deferred too long, or they are apt to burst first violently immediately upon being punctured, though this may be avoided by holding them under water while the first incision is made. The hole being drilled, the lining membrane should be cleared away from the orifice with a small penknife, by which means not only is the removal of the contents, but also the subsequent cleansing of the specimen, facilitated. The small end of a blowpipe (fig. 4) should then be introduced, while the other extremity is applied to the mouth, and blown through, *first very gently*. If the embryo is found to be moderately developed, a stream of water should be introduced by means of a syringe (fig. 5), and the egg can gently shaken, after which the blowpipe may again be resorted to, until by the ultimate use of both instruments, aided by scissors, hooks (figs. 6 and 7), knives and forceps, the contents are completely emptied. After this the egg should be filled with water from the syringe, gently shaken, and blown out, which process is to be repeated until its interior is completely cleansed, when it should be laid upon a pad of blotting paper or fine cloth, with the hole downwards, its position on the pad or cloth being occasionally changed, until it is perfectly dry. During this time it should be kept as much as possible from the light, especially from the sunshine, as colors are then more liable to fade than at any subsequent time. In the case

of very small eggs, when fresh, the con-

Fig. 1.

Fig. 2. Fig. 3.



tents may be sucked out by means of a bulbed tube, and the interior afterwards rinsed out as before. It is always advisable, as far as possible, to avoid wetting the outside of the shell as the action of water is apt to remove the "bloom," affect the color, and in some cases alter the crystallization of the shell. Consequently dirt stains or dung spots should never be removed. While emptying the contents, it is as well to hold the egg over a basin of water, to avoid breakage in case of its slipping from the fingers. Eggs that are very hard sat upon, of whatever size they be, should be treated in the manner detailed in "Concluding Observations," in next issue, which is a method superior to any other known at present to the writer for preventing injury arising to them. Should the yolk of the egg be dried up, a small portion of *carbonate of soda* may be introduced (but with great care that it does not touch the outer surface of the shell, in which case the color is likely to be affected), and then the egg filled with water from the syringe, and left to stand a few hours with the hole uppermost, after which the con-

tents are found to be soluble, and are easily removed by the blowpipe, assisted by one of the hooks. It is almost unnecessary to add, except for the benefit

Fig. 4. 4a. Fig. 5.



of beginners, that the manipulation of the different instruments requires extreme caution, but a few trials will give the collector the practice necessary for success. Those who may still prefer to

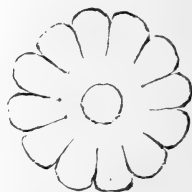


Fig. 6. Fig. 7.

blow eggs by means of two holes, are particularly requested not to make them at the ends of the eggs, nor on opposite sides, but on the same side. In this case the

hole nearest the smaller end of the egg should be the smallest, and the contents blown out at the other. If the holes are made at the ends of the eggs, it not only very much injures their appearance as cabinet specimens, but also prevents their exact dimensions from being ascertained accurately; and if they are

Fig. 8.



Natural Size.

made at opposite sides, the extent of the "show surface" is thereby lessened. Eggs should never be written on until the shells are perfectly dry, or the ink will be found to run, and the inscription will be rendered illegible. Eggs with chalky shells, such as those of the anis (*Crotophaga*), gannets and cormorants (*Pelecanidae*), and others, may be conveniently marked by incising with a pin or the point of an egg-drill, so also those of the ptarmigans (*Lagopus*), care being taken in this case to select the dark-colored patches to write upon. The inscriptions should always be placed on the same side as the hole or holes, and confined within the smallest limits possible. For drilling the hole or holes the side presenting the least characteristic markings should be selected.

(Concluded in next issue.)

### Wrong Impressions in Fish Culture.

An important point which has frequently come to my notice is, that in the artificial manipulation of fish the erroneous impression has been gained by many intelligent people, that young fry can be produced from the eggs of a fish in which life had departed. It is my opinion, which is based upon actual ex-

periment, that the eggs cannot be vitalized after the heart has ceased to beat. To test this matter correctly, it is necessary to wait some time—an hour at least—after the fish has ceased to exhibit any outward signs of life, as I have ascertained by examining young fry under the microscope that the blood will flow and the heart beat for twenty minutes to a half hour after the fish is to all outward appearances dead. In order to obtain the best results from artificial impregnation, both parent fish must be alive and in a healthy condition, and the eggs fully matured naturally. If the eggs are forced from the fish prematurely, the operation will result in a failure, and the fish thus operated upon will almost always die.

Another false idea, which is by no means uncommon, is that fish can live and thrive without food. This is a mistake; fish require food the same as any other living creature, and in abundance, according to their size. This wrong impression has been gained through keeping gold fish in aquariums in which they have been known to live for months, and in some cases years, without putting in food; but the means through which they live is by sucking the greenish matter from the sides of the aquarium and stones. This matter contains microscopic plants and animals, which sustains them. In cleaning an aquarium in which gold fish are kept, never wash the stones, but take them out carefully, and when ready, replace them without disturbing the slimy substance on them.—Seth Green in *American Agriculturist* for April.

### Natural Gas in Indiana.

The results of recent developments render it very probable that this state may soon take rank as an important natural gas producer. It is generally admitted that wherever petroleum is found, natural gas may also be expected to be found in quantities greater or less. Pe-

troleum has been found in a number of localities throughout the state, though not in such abundance as to encourage exploration, in view of the great productiveness of the prolific regions further east. The efforts to develop natural gas in the state, which have lately been undertaken systematically, have met with very encouraging results. Good flowing wells have been struck at Kokomo, Muncie, Portland, Noblesville and many other localities, and its application for fuel for manufacturing and domestic purposes is rapidly taking place.

The well at Valparaiso is progressing finely. Considerable excitement was created when but about 120 feet down. Gas bubbled through the oily water and on being ignited gave good light. Work was renewed with additional vigor and all interested are confident of a good flow.

### Our Finds.

The spring collecting season opened with us, this year, on March 22d, with finding a set of three fresh eggs of Werd's heron (486x). In the same tree from which this set was taken, was another Werd's heron's nest, containing two young birds, one "pipped" egg and one "sound" egg.

March 23d, we secured a few sets more of Werd's heron, also fine male and female specimens of white crested night heron (496). We saw little blue and La. heron, for the first time this year, to-day.

March 25th, we took sets of turkey buzzard (454) and black vulture (455) eggs. Also a set of two eggs of mocking bird (11).

April 4th, as a result of an entire days work, we secured one egg of the black vulture. To-day, for the first time this year, we saw the swallow-tailed kite and also several green herons.

April 5th, we saw several hooded warblers and heard an orchard oriole.

April 7th, we took several sets of (495) black cr. night heron. These sets contained two, three and four eggs. The sets of three were slightly incubated and the sets of four were more advanced. Also we took a set of three eggs of (402b) Texas screech owl.

April 13th, we secured a ♂ specimen of the Kentucky warbler.

This ends our finds up to date.

Yours truly,

R. E. Rachford & Son,

April 14, 1887.

Beaumont, Tex.

### A Tree That Always Keeps a Standing Army.

Here's a story that a bright little humming-bird told me the other day. As it started from somewhere in the tropics, it grew to be a pretty long account by the time it reached me here in New York state; but it is founded strictly upon fact:

"What makes you live in such a thorny tree?" said the humming-bird to one of her neighbors who always builds her nest on the bull's-horn thorn.

"It's a capital place," said her friend. "The thorns keep the monkeys away from my babies, and the army drives off the little pests that make housekeeping so troublesome to little birds in other trees."

"Army! What army?"

"Why, *our* army," said the little bird."

"Don't you know that our tree keeps an army?"

You may be sure that the humming-bird was surprised to hear that. *I* was. And if I didn't know her so well I should have suspected her of spinning travelers' yarns. But she's honest; what she says can be depended on.

To make a long story short, I'll tell you about that army-keeping tree. It's a thorn-tree, you must know, and as the thorns grow in pairs, curved out like bulls' horns, the tree gets its name from them. When the thorns are green they

are soft, and filled with a sugary pulp, which is greatly liked by a kind of small black stinging ants, which are never found except on these trees, and the trees, it seems, can not live without the ants, at least in that part of the world. The ants bite a small hole near the tip of one of each pair of thorns, then gradually eat out the interior of the two. The hollow shells make capital houses for their young ones, and never go without tenants.

How do the ants live after the houses are cleared of food? The tree attends to that. On the stem of each leaf is a honey-well, always full, where the ants can sip to their hearts' content. These wells supply them with drink. The leaves furnish the necessary solid food, in an abundance of small yellow fruits, like little golden pears. They do not ripen all at once, but one after another, so that the soldiers have a steady supply of ever-ripening fruit to eat, and are kept busy all the time running up and down the leaves to see how their crops come on. When an ant finds a pear ready for eating, he bites the stem, bends back the fruit, and, breaking it off, carries it back in triumph to the nest.

It would be a cowardly ant that would not fight for a home like that, and these ants are no cowards. Just touch a limb so as to jar it, and the valiant little soldiers will swarm out from the thorns in great numbers, and attack the intruder with jaws and stings. Not a caterpillar, leaf-cutter, beetle, or any other enemy of the tree can touch one of its leaves without paying the penalty. Thus the tree thrives where it would otherwise be destroyed; and the ants find their reward in snug houses, with plenty to drink and to eat. The small birds, which hurt neither the ants nor the leaves, also find protection with them, and, let us hope, pay good rent in morning and evening songs.

Isn't that a profitable partnership?

P. G.

### The Polar Bear.

The Polar Bear (*U. maritimus*), is the largest, strongest, most powerful, and, with a single exception, the most ferocious of the five species of the bear which have been distinguished by naturalists. Its distinguishing characteristics are the great length of its body, as compared with its height; the length of the neck; the smallness of the external ears; the large size of the soles of the feet; the fineness and length of the hair; the straitness of the line of the forehead and the nose; the narrowness of its head, and the expansion of its muzzle. It is invariably of a dingy white hue. The size varies considerably. Some are mentioned as long as thirteen feet; but this is probably an exaggeration. Captain Lyon mentions one of eight feet seven inches long, weighing fifteen hundred pounds. The domestic habits of these powerful animals are not much understood; and the fact of their hibernating or not is not very well ascertained, although it is believed that the male, at least, is not dormant so long as the land bears of the north. The admirable work of the late excellent Kane seems to place in doubt whether either sex absolutely hibernates, as we find she-bears with their cubs visiting his winter quarters during the midnight darkness. The pairing season is understood to be in July and August; and the attachment of the pair is such, that if one is killed, the other remains fondling the dead body, and will suffer herself to be killed rather than leave it. The same wonderful affection of the female to her cubs has been noticed, from which neither wounds nor death will divide her; and all the arctic navigators, from Dr. Scoresby to Dr. Kane, have recorded their sympathy with, and regret for the poor savage mothers, vainly endeavoring to persuade their dead cubs to arise and accompany them, or to eat their food which they will not themselves touch, although

starving—even when compelled to slaughter them in order to supply their own necessities.

The habits of the polar bear are purely maritime; and, although their system of dentition is the same with that of the other bears, their food, from necessity, is wholly animal.

The polar bear is rare in menageries.

### Aquatic Spider.

In the *American Naturalist* a writer notes an observation made of the habits of the aquatic spider: "Walking beside a mill-pond on a mild, balmy day last March, a slight wind prevailing, but not enough to ruffle the surface of the water, I noticed a spider let himself down into the water from one of the trees bordering upon the pond, and as soon as it reached the water the web or strand was severed with such a length attached to his person as to act as a sail and serve to assist his propulsion, with the favoring breeze, to the other side.

Numerous spiders follow the same procedure with webs of varying lengths from three to eight feet. I supposed this was their method of crossing from side to side in search of more abundant food.

I may, perhaps, be only repeating what was before well known, but as it was new to me I give it for what it is worth.

A youth of Sandwich, Ill., four years old, and his young sister, saw a rat hasten into a hole in a barn floor. Said he, "Sis, the Bible says 'watch and pray'. You pray while I watch the hole and I'll swat him acrost the snoot when he comes out.

Please show this number of the NATURALIST to your friends and see if they will not accept our special offer on page 134.

# GEOLOGY.

This department is conducted by W. R. Lighton, Leavenworth, Kan. All inquiries and communications under this head should be addressed to him.

## Economic Geology.

### FOURTH PAPER—CLAYS.

The uses of our clays are very numerous, and as in the case of building stones, the value of a particular clay must depend entirely upon the use to which it is to be put.

I shall say nothing of the uses and values of clays and clay soils in agriculture, although this is one of the widest and most profitable fields for study, but I shall confine myself to a consideration of the purely artificial uses of our clays. First permit me a few words as to the nature and origin of clay as a whole and not separated into its varieties.

Feldspar is known in the technical language of the mineralogist as a silicate of alumina, that is, it is composed of silica and alumina in a state of chemical union, and there occurs also in the composition a smaller amount of one or more of the common alkalies, lime soda or potash and usually some impurities in addition which give it the various colors in which it is seen.

Clay is formed simply by the decomposition or disintegration of Feldspar, in the course of which process some of the silica and alkali is dissolved out by the water, and water is added to the composition, or as the mineralogist says, it becomes *hydrated*. At the conclusion of this process of decomposition and partial re-composition we have in the product what is called Clay.

If the change has taken place without the disturbance of the feldspar or the admixture of any other materials or impurities, we have Kaolin, which is the material used in the manufacture of the finer kinds of pottery, but if, as is more frequently the case, the rocks from which the clays were formed were not

pure feldspar, but only rocks into which feldspar entered as one of the constituents, as granite, etc., the clays will contain these other materials, such as quartz, mica, etc., which will render the clay of coarser texture and unfit for use in the finer grades of pottery.

By far the greater number of our large beds of clay have resulted from the wearing down of impure feldspathic rocks and the deposition of this powdered material as a sediment, either from suspension in water or by the glaciers which swept over our country from the North at the close of the Tertiary Epoch, and of course in either of these events the clays must contain a considerable amount of foreign material which has been accumulated by the currents which have deposited the clay itself. If in their course these currents have passed over beds of Limestone there will be a greater or less amount of lime in the clay and so if sandstones, iron ores or other rocks have been encountered, these materials will enter into the composition of the clay, and it is upon the percentage in which these foreign materials exist that the value of the clay depends.

There are some minerals, as you know which can be raised to a very great degree of heat without melting, or fusing and pure clay is one of these, but it is a curious fact that by being mixed with some other mineral substances called *fluxes*, these materials will melt at a much lower temperature, although the flux by itself may not be easily melted. For example; pure silica and pure lime will only melt at very high temperatures, but when heated together also with some other alkalies, the compound is easily fused, forming glass, and you all know at what a low temperature glass will melt. Lime is one of the fluxes which will greatly reduce the melting point of clay, as will also iron, potash or soda if in any quantity.

Bearing these introductory remarks in mind, we are now able to proceed to



consideration of the economic value of the more important varieties of clay.

If a clay is to be used in the manufacture of a fine grade of pottery it should be free from any admixture of iron because when the clay is subjected to the heat which is necessary to bake it if there be any iron in it the heat will alter it to an oxide, and give it the bright red color peculiar to that form of iron and so familiar to us in our common grades of brick. In coarse grades of pottery, and in tiling, etc., this color is not objectionable, but it detracts largely from the finer qualities of stone-ware.

The presence of iron may be ascertained by heating a specimen of the clay in an ordinary flame, when, if the iron exists, it will be oxidized and this red color will appear. It is also essential that for this purpose the clay should be of a fine and even texture, free from coarse sand and grit. The presence of these impurities may be discovered by reducing the clay to a paste with water and rubbing it between the fingers.

In the manufacture of "fire-brick", which, used in the construction of furnaces, cupolas, and in other places where it is necessary to withstand a high degree of heat, it is essential to have a clay free from lime, iron, or any of the fluxes, as, if these exist, the brick, when highly heated, will fuse and melt down.

Clays of sufficient purity to make good fire brick are quite common in the strata of the coal measures, occurring generally in close association with the veins of coal.

In ordinary brick clay iron is very common, as are also lime and several other of the fluxes, but because of the fact that common brick are not to be subjected to a great heat, these are not regarded as objectionable in small quantities, but care should be taken to see that they do not exist in such amount as to cause the brick to fuse together in baking.

In all clays it is to be observed that

they are free from coarse sand or gravel, as this will render the clay less tenacious and will cause it to crumble easily after being baked. A small amount of fine sand in brick clays is an advantage, as in the presence of the fluxes it will be partially fused and render the brick much more firm and enable it to more certainly withstand pressure.

The presence of any considerable amount of lime may be detected by a dilute solution of muriatic acid, which, if lime exists will cause effervescence, or in other words, will liberate the carbonic acid which enters into the composition of limestone, and this acid will rise in bubbles.

A good clay should be of such physical character that it is plastic when moistened and easily worked into form.

W. R. L., Leavenworth,  
Kan.

### Fair Bird Destroyers.

That fickle, changeable, fantastic, and often nonsensical goddess, Fashion, and her fair votaries, are answerable in part for the destruction of the birds, and particularly of those adorned with brilliant plumage. Many a fair maiden, or woman, tender-hearted, considerate and sympathetic, who would be shocked by the wanton cruelty of the thoughtless boy who would kill the beautiful little humming-bird as it flits from flower to flower, is quite reconciled to the fact if the dead bird can be treated by the taxidermist and added to the aviary upon the curious structure which is now worn in the place of the bonnet which adorned and protected the head of her mother and grandmothers, of different degrees, for generations. Questionable as is the taste that places a yellow-eyed screech-owl, or vampirish bat, upon a lady's head-gear, it is a well-known fact that thousands and tens of thousands of our much-prized birds become a sacrifice to fashion in each year.

It is gratifying to learn that the Audu-

bon Society, whose members pledge themselves to do all in their power to discourage, and, if possible, suppress the use of birds and birds' feathers as ornaments of dress, is rapidly extending its sphere of usefulness and humanity. It would be well if in every city, town and school-district in the United States the girls and boys would organize a society or club having for its object the protection of our harmless, beautiful and musical birds. The girls, by refraining from the use of birds, or the plumage of birds for ornament; and the boys, by ceasing to stone, shoot, or trap such birds or to rob their nests of eggs, or young, and by waging a war of extermination against the sparrows, can do much towards restoring to us the birds whose absence and loss is so much to be deplored.—American Agriculturist for May.

### The Owl.

#### A BOY'S COMPOSITION.

Wen you come to see a owl cloce it has ofle big eyes, and wen you come to fel it with your fingers, wich it bites, you fine it is mosely fethers, with only just meat enuf to hole 'em to-gether.

Once they was a man that he would like a owl for a pet, so he tole the bird man to send him the best one in the shop, but when it was brot he look at it and squeezed it and it dident sute. So the man he rote to the bird man and said, Ile keep the owl you sent, tho it aint like I wanted, but wen it is wore out you mus make a other, with little eyes, for I spose these eyes is number twelves, but I want number sixes, and then if I pay you the same price you can aford to put in more owl.

Owls has got to have big eyes cos tha has to be out a good deal at nite a doing bisnis with rats and mice, which keeps late ours. They is said to be very wise, but my sister's young man he says any bod-

dy could be wise if they would set up at nites to take notice.

That feller comes to our house jost like he used to only more, and wen I ast him wy he come so much he said he was a man of science, like me, and was a study-ing arnithogaly, which, was birds. I ast him wot birds he was a studyin, and he said anjils, and wen he said that, my sister she lookt out the winder and said wot a fine day it had turned out to be. But it was a rainin cats and dogs wen she said it. I never see such a goose in my life as that girl, but Uncle Ned, which has been in al parts of the worl, he says they is jes that way in Patty-gony.

In the pieter alphabets the O is sometimes a owl, and sometimor it is a ox, but if I made the pictures Ide have it stan for a oggar to bore holes with. I tole that to old gaffer Peters once wen he was to our house looking at my new book, and he said you is right, Johnny, and here is this H stands for harp, but who cares for a harp, wy don't they make it stan for a horgan? He is such a ole fool.—*Ec.*

### Protect the Birds.

There is nothing that will stop the destruction of song-birds in order that they may be crucified on women's bonnets but a penal enactment. It is no longer of any use to appeal to the higher sensibilities or senses of the fashionable. That has been tried now for the last two or three years without the least apparent effect. Meantime, the silence of the forests and woodlands is becoming noticeable, and in two or three years more the birds will be destroyed or driven away. An enactment punishing the traffic in, or use of, the plumage of birds in millinery, would be received with delight by every lover of nature and by every friend of the innocent and charming songsters of the air.—Interior.

# The Hoosier Naturalist.

Published Monthly, at 60 cents a year.

To Foreign Countries, 75 cents a year.

R. B. TROUSLOT,

EDITOR AND PROPRIETOR.

R. B. TROUSLOT & CO., PUBLISHERS.

*Items of interest solicited from all  
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VALPARAISO, IND., APRIL 1887.

ADVERTISERS like to have parties answering their "ads" state where they saw them.

THE HOOSIER NATURALIST extends thanks to the Indianapolis Business University for an invitation to be present at the "Students' Reception and Reunion," at the halls of the University, Wednesday evening, April 27.

We are also indebted to George E. Briggs, of Trenton, N. J., through whose kindness, we were made an honorary member of the Linnean Scientific Association, of that place. Quite a surprise to us.

Leslie J. Rivers, of Oskaloosa, Iowa, sends us a very creditable No. 1, Vol. I, of his "The Young Geologist," which is a four page 16mo., published at 25 cents per year. He has it crowded with geological information, and as his advertising patronage is liberal, he will continue during the year, at least, and we trust longer.

ONE REASON:—Sweet are the uses of adversity, because one way of using its letters is to spell the great talisman of success—*Advertise.*

WARD's heron, designated by R. E. Rachford & Son as 486x, is not mentioned in the old nomenclatures. In the A. O. U. nomenclature it is "193. *Ardea wardi* Ridgw." Excepting the 486x the other numbers used by Messrs. R. E. Rachford & Son correspond to Ridgway's nomenclature.

THE interest of our patrons is *our* interest—it is our desire that their investments with us should yield the largest returns—and in executing their orders we endeavor to omit nothing in the way of effort or watchfulness that will tend to that result.

## ABOUT OUR ADVERTISERS.

MANY years ago, we recollect seeing several small boys poring over a lot of soiled and blurred bits of colored paper. On closer scrutiny and a question or two it became evident the bits of paper were canceled foreign stamps, of which the boys were making collections. It soon became a mania in that neighborhood, and has been ever since; not only there, but here and thousands of other places, the world over. The mere collecting of stamps, is, of itself, nothing, but it would be difficult to collect these without learning something of the countries from which they come. Again, it keeps their young and active minds employed, consequently, out of mischief. Several friends owe their success in life entirely to the stamp mania. We are in favor of it, and always shall be, and to such of our younger readers who are interested in collecting any thing at all, we would suggest an order be sent to Edward R. Hasbrouck, 1287 Grand St., Newburgh, N. Y., for an assortment of his stamps.

YOUR attention was directed in Feb. issue, to the advertisement of R. M. Gibbs, M. D., of Kalamazoo, Mich. We wish to say a word in his behalf, sup-

porting his statements by our own experience of over ten years use of the embalming method. We have used this method for every size of birds, from the diminutive hummer to the noisy and gaudy peacock of the barn-yard, with the same gratifying success. Animals have been treated similarly, and those put up years ago, have stood the test of time and much travel, and look, to-day, as well as they ever did.

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With regards the Normal School and Business Institute, we think it is the *best* institution of its kind in the world. This is self evident, as, of the 1500 students now in attendance, nearly 1000 of them have been here before. Why do they return? Because they rightly consider Brown & Kinsey's school superior to all others. Send for a large catalogue, free.

THE Agassiz Association's "Swiss Cross" is, without doubt, the leading periodical of its kind, printed in any language. Harlam H. Ballard, the A. A. President, now of Pittsfield, Mass., is editor. Four numbers have already appeared. But few of the articles are at all technical, the general aim being at a popular magazine for every lover of nature. The present excellent standard will be maintained; it will scarcely permit of improvement.

The subscription price is but \$1.50 per year.

N. B. By special arrangements with the publisher, N. D. C. Hodges, we are able to offer our H. N., together with the Swiss Cross, at the regular subscription price of the latter.

At Salem, Mass., there is a Cuvier Natural History Club, the official organ of which is The Amateur Collector; a neatly printed four page paper, from which we take the following:

"Our long-talked-of fair has at last

been held, and we do not think that we shall be incroaching too much upon our readers' time if we give a short account of it. It was held in the vestry of the Barton Square Church, on March 1st. Luckily, the day was pleasant; the hall was crowded from eleven in the morning untill ten in the evening. Our main booth was devoted entirely to natural history. It was surmounted with an arch which was covered with evergreen, with a deer's head in the center. There were two fancy article booths, candy and refreshment table, grab box booth and a small table on which were pipe dolls.

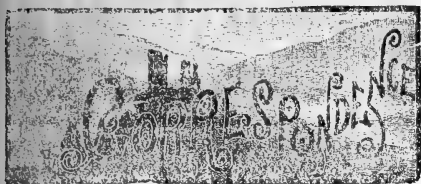
We were very successful in every particular, and made over \$175, which we shall use to build our new club house, when the frost is out of the ground. We wish to thank all our friends who contributed to our fair and waited on its tables, and also to thank all who patronized it. When our club house is built and our collection arranged to the best advantage, we shall be happy to show both to all of our friends."

CONTRARY to our usual custom, we mail, this month, a large number of sample copies. We desire your subscription, and if you will remit at once, we will mail the HOOSIER NATURALIST to you for one year, for only fifty cents, including a valuable premium. When ordering, please state "as per your special offer in April number." The above must be accepted before the first of June, as thereafter the regular price will prevail.

DID the publisher of the Ornithologist and Oologist get the white owl recently brought to Boston. It flew aboard a steamer from Hull, England, while 750 miles from land?

It is reported that two rare animals, an otter and a beaver, were recently killed near Oquawka, Ill.

WE would call attention to the several column "ads." now running in the NATURALIST.



## AND TAXIDERM.

Spring has come and bird-life with it. The robins and blackbirds are here in plenty. I saw the first blackbird Feb. 12, also a flock of female American goldfinches. Have also seen turtle doves. March 6, I saw an albino English sparrow. The plumage of the bird was entirely white, except the top of head, and nape of neck, which were streaked with light brown.

P. S. Would like to know if the Cuban martin is found in any part of North America. Also if the white throated and black throated swifts are very common birds here. Respectfully,

C. M. THORNTON, BEDFORD, IND.

EDITOR HOOSIER NATURALIST:—On the 25th of last March Mr. Oscar Vaught, a student in DePauw university, took two specimens of the evening grosbeak at Mace, Montgomery county, of this state. These were from a flock of eight or ten, which were feeding on the buds of an elm tree in the middle of dense woods. This is the second instance of this bird's appearance in this state that has been noted. The first, I believe, was a specimen taken at Bloomington, this winter. The two skins are in the museum of DePauw university.

O. P. JENKINS.

### An Amateur Museum.

It is now nearly twelve years since one wet day when my sister and I began to make a "curiosity shop." Into an unused dressing room we gathered all the natural and artistic curiosities we could

muster. There was plenty of material for our purpose in a house where every sort of art or science was encouraged. We borrowed of every member of the family, added our own feeble collections of stones and shells, grouping our treasures in the old simple divisions of "animal, vegetable, and mineral." The result was so satisfactory, that our museum henceforth became an established institution.

It is needless to say that in the course of years the collections and the knowledge of them both have increased. Child's play has become earnest. Familiarity with Nature's treasures led to careful study.

Of our three groups, the mineral far exceeds the others. Of the collecting of stones there is no end. Every visit to new ground produces fresh specimens of fossils or curious minerals. For years they were all jumbled together, a miscellaneous collection in which polished stones were set apart from the sandstone and chalk fossils (such is the science of the young). But a few years ago, after a course of careful reading, and with great pains, the fossils were separated from the minerals and grouped in their proper geological orders. The result was a pretty fair show of Primary and secondary formations, with rather a surplus of Upper greensands and flint fossils. But of the Tertiary period we had just six specimens—they were almost invisible. Since then a gift of Eocene shells from the Barton series has increased our Tertiary until it almost exceeds the Primary specimens. Such are the vicissitudes of an amateur museum.

The sea has given us many a treasure, either gathered from the rocks, or washed up by the tide. Preserved in spirits are some sea mice (*Aphrodite aculeata*), an octopus, and a common squid (*Loligo vulgaris*). The two last stand at the head of our British shells as representatives of the Cephalopods. They, and many corallines, sponges, and other zoophytes,

have all been found upon the beach after rough weather. Then there are sea urchins, and many different kinds of crab shells; for we by no means despise common things. We have a good show of British shells, and a large tray of foreign ones—old friends that have been family treasures for many years. Most people, I think, have such a collection of foreign shells brought home by some sailor relation. Brilliant, yet with a good many dead shells amongst them, and with more olives and cowries than one knows what to do with.

A Brahminical distaste for taking life has much restrained our collecting manias. We have no British butterflies or moths, and few birds' eggs. Instead, there is a miscellaneous assortment of trifles, picked up here, there, everywhere. A rook's skull, a scrap of hedgehog's skin found in a copse, and well illustrating the arrangement of the spines. Besides such as these, there are foreign treasures—the armour of an armadillo bought at a curiosity shop in Penzance. A stuffed iguana relic from a sale of "household furniture and effects." One case of stuffed birds and another of moths and butterflies we brought home after a summer spent in Canada, purchasing in Toronto the skins and insects to remind us of the animals which we had seen there daily. Some very "seedy" looking East Indian insects our great uncle brought home, the wild boar's tusks were taken by our grandfather in the same country, and it was he who shot the tiger of which the skin carpets the floor.

To us the museum is more than a mere museum. Everything has a history; tells of some walk or visit, reminds us of some friends: for to the generosity of our friends we owe some of our best treasures.

A great many kinds of nuts, specimens of different woods, bark and seeds form the vegetable group. And we have a collection of drugs and spices, from the

warehouses at London docks—a practical explanation of that "Book of Useful Knowledge" we used to learn when children.

The walls of our museum are covered from floor to ceiling. On one side hangs a large Zulu shield, opposite to it a Chinese picture taken from a temple during the war. Our armoury consists of a New Zealand club, an American-Indian one, a Fiji spear, and East Indian dagger. We have horns, stag antlers, and a great many models of boats and canoes.

The furniture of our museum has always been of the simplest kind, not to say roughest, kind. A cabinet for which there is no room elsewhere, a what-not decreed too rickety to be of any use, some disused bookshelves, an old dressing-table, a doll's house no longer needed, a cupboard, and some boards. Such have been our "plenishings" from the earliest days. We also have some home-made trays in which to arrange specimens. I am inclined to think that the furniture of an amateur museum should always be of this nature. Smart shelves and tables sometimes prove fatal to science.

I have before now been asked where we find curiosities for our museum, and can but answer "every where."

During a summer visit to Canada three years ago we collected right and left, very much surprising our friends by the common objects we thought worth taking across the Atlantic. But I believe that it is this attention to common-place things which has made our own museum such a success. We seldom stray from home without returning with something fresh for it; few friends see it without finding some treasure in their own homes which they generously offer us.

Now and then the museum "goes out of fashion," and gets neglected, but never for long; and these periods get shorter as days go on. It is an unfailing delight, and, like Dame Nature herself, offers the same genial face after long neglect, as during time of favor. Whatever may be unsatisfactory, there is always pleasure to be found in that little room amongst its fossils, shells, nuts, and corals.—B. F. C. in "The Naturalist's World."

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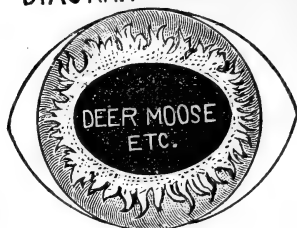
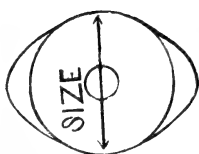
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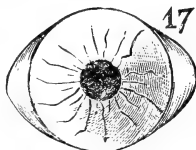


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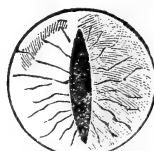
# DIAGRAM OF SIZES



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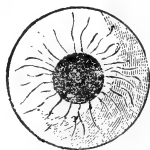
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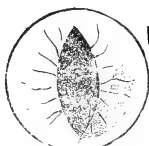
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STYLE 2



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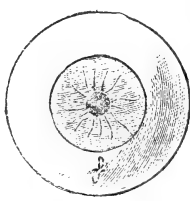
HAZEL WITH WHITES



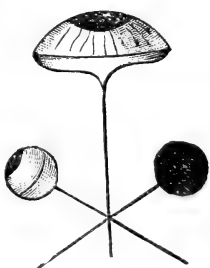
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WAX  
FIGURE  
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18



19



20



21



17



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1	.03	.30	.04	.35	....	....	.01	.05	.12	1
2	.03	.30	.04	.35	....	....	.01	.05	.14	2
3	.04	.35	.05	.40	....	....	.01	.05	.16	3
4	.04	.35	.05	.45	....	....	.01	.08	.20	4
5	.05	.40	.06	.45	....	....	.02	.08	.25	5
6	.05	.45	.06	.50	.10	....	.02	.10	.30	6
7	.06	.50	.07	.60	.10	....	.02	.12	.35	7
8	.07	.60	.08	.70	.12	....	.02	.14	.40	8
9	.08	.70	.09	.80	.12	....	.03	.16	.50	9
10	.09	.80	.11	1.00	.15	1.40	.03	.18	.70	10
11	.11	1.00	.13	1.20	.16	1.50	.04	.20	.80	11
12	.12	1.10	.14	1.30	.18	1.60	.04	.22	1.10	12
13	.14	1.30	.17	1.50	.22	2.00	.04	.25	1.20	13
14	.16	1.50	.22	2.00	.24	2.20	.05	.35	1.40	14
15	.18	1.70	.24	2.20	.26	2.50	.06	.45	1.60	15
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17	.23	2.20	.30	2.80	.32	3.00	.08	.60	2.00	17
18	.26	2.50	.32	3.00	.36	3.40	.09	.70	....	18
19	.32	3.00	.36	3.50	.40	3.80	.11	.85	....	19
20	.36	3.50	.40	3.80	.46	4.50	.14	1.10	....	20
21	.40	3.80	.46	4.50	.50	4.80	.18	1.20	....	21
22	.50	4.80	.60	5.40	.70	6.50	.20	1.50	....	22
23	.60	5.30	.72	6.30	.80	7.40	.22	1.75	....	23
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HOOSIER NATURALIST.

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FROM THE HOOSIER NATURALIST.

# THE HOOSIER NATURALIST.

VOL. II. NO. 10. VALPARAISO, IND., MAY, 1887. } PUBLISHED MONTHLY.  
60c. PER YEAR.

## Birds of Monroe County, Indiana.

BY BARTON W. EVERMANN, INDIANA STATE  
NORMAL SCHOOL.

Monroe county, Indiana, lies southwest of Indianapolis about 60 miles, and about 100 miles north of Louisville, Ky. The county lies in the limestone region of the south-central part of the state, and has a somewhat broken surface. Indeed, the hills about Bloomington (the county seat), and to the eastward, attain a considerable size. From Bloomington eastward the country grows more and more broken and the hills higher and more rugged as we near Brown county, where we find Weed Patch hill, the highest hill in the state, and "Bear Wallow," of almost equal height. Except where farms have been cleared there are heavy growths of timber, chiefly hard maple, beech, oak, walnut, tulip (poplar), etc. The west fork of White river forms the northwest boundary of the county for a few miles. The other streams, Bean Blossom creek, Griffith creek, and Salt creek, are all small and unimportant, and furnish but little inducement to water-birds to stop in the county. This list will therefore be found to contain but few of such species as frequent larger streams or lakes.

The observations upon which this list is based were made chiefly by the writer and others connected with the State university either as professors or students. Only such species as have been certainly identified as belonging to the avi-fauna of Monroe county are admitted to a place in the list. Unless otherwise expressly

stated, the writer is responsible for the species included. When the identification or capture was made by another, due credit is given. In this connection, I desire to express my obligations to Messrs. Chas. H. Bollman, W. S. Blatchley and G. G. Williamson for their valuable assistance in studying the migrations of birds through this county and in determining the permanent and summer residents.

The present paper is little more than a bald list of the species identified, it being the purpose at another time to add fuller notes as to the relative abundance, distribution, migration, etc., of each species.

In nomenclature and classification the A. O. U. code and check-list of N. A. birds has been strictly followed. The dates given are those upon which specimens were seen and generally indicate first arrivals.

1. *Codilymbus podiceps* (L.). Pied-billed Grebe.  
Not often seen.
2. *Merganser americanus* (Cass.). American Merganser.  
Not common.
3. *Anas boschas* L. Mallard.  
Not common. Several seen March 5, 1886.
4. *Anas carolinensis* Gmelin. Green winged Teal.  
Not common. A few seen March 5.
5. *Spatula clypeata* (L.). Shoveller.  
Not common. One obtained by Mr. Blatchley in Clear creek, May 8, 1886.
6. *Dafila acuta* (L.). Pintail.  
Apparently rare. One obtained in a

little creek near the college campus, February 26, 1886.

7. *Aix sponsa* (L.). Wood-Duck.

This is probably the most common duck here.

8. *Anthya affinis* (Eyt.). Lesser Scaup Duck.

Rare. One seen in White river at Gosport, May 8, 1886; several were seen in Clear creek, on same day, by Mr. Blatchley.

9. *Charitonetta albeola* (L.). Buffalo-head.

Very rare. One seen March 6.

10. *Branta canadensis* (L.). Canada Goose.

Seen occasionally flying over.

11. *Botaurus lentiginosus* (Montag.). American Bittern.

Not often seen. May 5, 1886.

12. *Ardea herodias* L. Great Blue Heron.

Not common.

13. *Ardea egretta* Gmel. American Egret.

A few are seen along the creeks in August, but I have never noted it in the spring except this year. One killed near Bloomington, April 10, 1887.

14. *Ardea virescens* L. Green Heron.

More common than either of the preceding. It nests in a grove of pines west of town.

15. *Porzana carolina* (L.). Sora Rail.

Not often seen. May 5, 1886; April 15, 1887.

16. *Porzana noveboracensis* (Gmel.). Yellow Rail.

The only specimen ever taken in this county, so far as I know, was captured alive in a marsh near Bloomington, some time in August, 1885.

17. *Fulica americana* Gmel. American Coot.

Not common.

18. *Philohela minor* (Gmel.). American Woodcock.

Rare migrant. One specimen taken in spring of 1885 by Mr. Foster Hight.

19. *Gallinago delicata* (Ord). Wilson's

Snipe.

A rather common migrant. April 15 and 18.

20. *Tringa maculata* Vieill. Pectoral Sandpiper.

Migrant, not common. March 15 and 26.

21. *Tringa minutilla* Vieill. Least Sandpiper.

A rare migrant.

22. *Ereunetes pusillus* (L.). Semipalmated Sandpiper.

A rare migrant.

23. *Totanus solitarius* (Wils.). Solitary Sandpiper.

A rare migrant.

24. *Actitis macularia* (L.). Spotted Sandpiper.

A rare summer resident.

25. *Aegialitis vocifera* (L.). Killdeer.

A rather common summer resident—arrives about March 7. Some remain in the fall until last of November.

26. *Colinus virginianus* (L.). Bob-white. Formerly a common resident, but now very scarce.

27. *Bonasa umbellus* (L.). Ruffed grouse.

Frequently seen among the hills east and northeast of Bloomington. Rather common among the Brown county hills.

28. *Meleagris gallopavo* L. Wild Turkey.

Not seen by me, but it was at one time common in the county, and is still occasionally seen in the wilder parts of the county.

29. *Ectopistes migratorius* (L.). Passenger Pigeon.

Formerly very abundant during the migrations, but far from common now.

30. *Zenaidura macroura* (L.). Mourning Dove.

A common summer resident. Occasionally a few remain all winter. February 23, 1886. Becomes common by the middle of March.

31. *Cathartes aura* (L.). Turkey Vulture.

A common resident except during a few weeks in midwinter. Full sets of



eggs found as early as April 17. February 22, 1886.

32. *Elanoides forficatus* (L.). Swallow-tailed Kite.

A rare visitant. One was shot on Bean Blossom creek, north of town, August 18, 1885. Another was reported as seen at the same time. This specimen, which is now in my collection, is, as far as I know, the only one of this species ever secured in the county or this part of the state.

33. *Circus hudsonius* (L.). Marsh Hawk. Migrant, rare.

34. *Accipiter velox* (Wils.). Sharp-shinned hawk.

Rare.

35. *Accipiter cooperi* (Bonap.). Cooper's Hawk.

Summer resident, but apparently not common.

36. *Buteo borealis* (Gmel.). Red-tailed Hawk.

Common resident—most numerous during the breeding season.

37. *Buteo lineatus* (Gmel.). Red-shouldered Hawk.

Perhaps as common as *B. borealis*.

38. *Aquila chrysaetos* (L.). Golden Eagle. A rare winter visitor.

39. *Haliaeetus leucocephalus* (L.). Bald Eagle.

A winter visitant—somewhat more common than the preceding.

40. *Falco columbarius* L. Pigeon Hawk.

Rare. One specimen obtained by G. G. Williamson in the fall of 1885. April 8, 1886.

41. *Falco sparverius* L. Sparrow Hawk.

Resident; rare during the winter but common at other times.

42. *Pandion haliaetus carolinensis* (Gmel.). Fish Hawk.

Seen occasionally in spring along the White river.

43. *Asio wilsonianus* (Less.). Long-eared Owl.

Not often seen. One or two specimens

were obtained in the fall from Turner's pine grove.

44. *Asio accipitrinus* (Pall.). Short-eared Owl.

Apparently very rare. Two specimens secured last fall are the only ones ever taken in the county.

45. *Syrnium nebulosum* (Forst.). Barred Owl.

This owl is a rather common resident.

46. *Nyctala acadica* (Gmel.). Saw-whet Owl.

The only specimen of this species that has been taken was caught on Thanksgiving day, 1886, in the engine house of the university.

47. *Megascops asio* (L.). Screech Owl. A common resident.

48. *Bubo virginianus* (Gmel.). Great Horned Owl.

Perhaps the most common resident owl.

49. *Coccyzus americanus* (L.). Yellow-billed Cuckoo.

A common summer resident. May 5, 1886.

50. *Coccyzus erythrophthalmus* (Wils.). Black-billed Cuckoo.

Of late years, apparently a more common summer resident than the other species. May 13, 1882.

51. *Ceryle alcyon* (L.). Kingfisher.

Summer resident. But few are seen except along White river. April 25, 1886.

52. *Dryobates villosus* (L.). Hairy Woodpecker.

53. *Dryobates pubescens* (L.). Downy Woodpecker.

Both of these familiar birds are common residents.

54. *Sphyrapicus varius* (L.). Yellow-bellied Woodpecker. Seen frequently in spring and late fall. Probably a rare resident. March 26, 1886.

55. *Ceophæus pileatus* (L.). Pileated Woodpecker.

This large bird is a very rare species in the county. In the fall of 1885, two specimens were secured from the heavy

timber near Bean Blossom creek. This, I believe, is the only recent record for the county.

56. *Melanerpes erythrocephalus* (L.). Red-headed Woodpecker.

Very abundant in summer and frequently a common winter resident. During the present winter it has been quite common.

57. *Melanerpes carolinus* (L.). Red-bellied Woodpecker.

Resident, but much less common than the preceding.

58. *Colaptes auratus* (L.). Yellow-hammer.

A common resident.

59. *Antrostomus vociferus* (Wils.). Whip-poor-will.

Summer resident, but seemingly not common.

60. *Chordeiles virginianus* (Gmel.). Nighthawk.

An abundant migrant, especially noticeable in the fall. May 6, 1886.

61. *Chaetura pelagica* (L.). Chimney Swift.

An abundant summer resident. In early fall vast numbers are in the habit of spending the night in the tall chimney of the University engine house. April 11, 1886.

62. *Trochilus colubris* L. Hummingbird.

A common summer resident. May 13, 1882.

63. *Tyrannus tyrannus* (L.). Kingbird.

A common summer resident. April 16, 1886.

64. *Myiarchus crinitus* (L.). Great-crested Flycatcher.

Summer resident, common. April 23, 1886.

65. *Sayornis phoebe* (Lath.). Pewee.

A common summer resident, arriving as early as March 1. April 21, 1882.

66. *Contopus virens* (L.). Wood Pewee.

A common summer resident. April 28, 1886.

67. *Empidonax flaviventris* Bd. Yellow-

bellied Flycatcher.

Migrant, but not common.

68. *Empidonax acadicus* (Gmel.). Acadian Flycatcher. An abundant summer resident, arriving about April 15.

69. *Empidonax pusillus traillii* (Aud.). Traill's Flycatcher.

A not very common summer resident.

70. *Empidonax minimus* Bd. Least Flycatcher.

Summer resident, but not common.

71. *Otocoris alpestris praticola* Hensh. Prairie Horned Lark.

A frequent winter visitor. A few probably breed in the county. I have seen very large flocks in the meadows west of town during cold weather.

72. *Cyanocitta cristata* L. Blue Jay.

A common resident. Begins to nest as early as April 1.

73. *Corvus corax sinuatus* (Wagl.). American Raven.

Formerly a common resident, but now very rare.

74. *Corvus americanus* Aud. American Crow.

An abundant resident. Nests as early as March 20.

75. *Dolichonyx oryzivorus* (L.). Bobolink.

A rather rare spring migrant. Several were seen May 6, 1882, and others May 8, 1886.

76. *Molothrus ater* (Bodd.). Cowbird.

A common summer resident. Among the victims of the Cowbirds' parasite habits, I have noticed the following: Cardinal Grosbeak, Towhee, Red-eyed Vireo, Scarlet Tanager, Wood Thrush, Acadian Flycatcher, Indigo Bird, Oven Bird, Worm eating Warbler and Summer Yellowbird.

77. *Agelaius phoeniceus* (L.). Red-winged Blackbird.

A summer resident, but not at all common, owing to the almost entire absence of ponds and marshes.

78. *Sturnella magna* (L.). Meadow Lark.

An abundant summer resident, usually returning from the south about Feb. 24.

79. *Icterus spurius* (L.). Orchard Oriole.

A common summer resident, becoming more and more common each year.

80. *Icterus galbula* (L.). Baltimore Oriole.

A common summer resident. The dates for its appearance in spring, at Bloomington, for the past four years, are: April 20, 21, 20 and 21.

81. *Scolecophagus carolinus* (Mull.). Rusty Blackbird.

A rare spring and fall migrant.

82. *Quiscalus quiscula virens* (Ridgw.). Bronzed Grackle.

A very abundant summer resident. Usually a few remain all winter.

83. *Carpodacus purpureus* (Gmel.). Purple Finch.

A frequent winter visitor.

84. *Loxia curvirostra minor* (Brehm.). American Crossbill.

Not until the winter of 1882-3 was this species ever noticed at Bloomington. The first were seen by me on February 10, 1883, when a few specimens were secured. Since then it has been a visitor to the pine grove west of town, about every winter. During the winter of 1883-4 it was unusually common. A few were seen on July 10, 13 and 14, 1886, by Mr. C. H. Bollman. It hardly seems probable, however, that the species breeds in this vicinity.

85. *Loxia leucoptera* Gmel. White-winged Crossbill.

On February 6, 1883, I shot two males of this species from a flock of fifteen that were feeding under the pine trees in the yard of Mr. Joshua Howe on College Avenue. On the 10th of same month I secured a female from Turner's Grove. Two other females were shot a few days later. These are, so far as I have been able to learn, the first White-winged Crossbills ever taken in the state. None have been seen at Bloomington since the early spring of 1883. It may, therefore, be regarded as a very rare winter visitor.

86. *Acanthis linaria* (L.). Redpoll.

A very rare winter visitant. One was seen in December, 1882.

87. *Spinus tristis* (L.). American Goldfinch.

A very common species during the summer, and not uncommon throughout the year.

88. *Spinus pinus* (Wils.). Pine Finch.

First noticed February 6, 1883, in company with the White-winged Crossbills. Several were then seen. Since then it seems to be not rare as a winter and early spring visitor.

89. *Centrophanes lapponicus* (L.). Lapland Longspur.

A very rare visitant. One gotten February 10, 1883, from a flock of Shore Larks, and another February 12, from a flock of two or three hundred Shore Larks. Others were doubtless in the flock, but they could not be distinguished at long range. These, I believe, are the only records for southern Indiana.

90. *Poocates gramineus* (Gmel.). Vesper Sparrow.

An abundant summer resident, arriving about March 25.

91. *Ammodramus sandwichensis savanna* (Wils.). Savanna Sparrow.

Migrant; not common.

92. *Ammodramus savannarum passerinus* (Wils.). Grasshopper Sparrow.

Rather common summer resident. April 25, 1886.

93. *Chondestes grammacus* (Say). Lark Finch.

A rare summer resident.

94. *Zonotrichia leucophrys* (Forst.). White-crowned Sparrow.

This sparrow is a common migrant in early spring and late fall.

95. *Zonotrichia albicollis*. (Gmel.). White-throated Sparrow.

A common migrant with the preceding.

96. *Spizella monticola* (Gmel.). Tree Sparrow.

Winter resident,—some years very abundant.

97. *Spizella socialis* (Wils.). Chipping Sparrow.

A common summer resident.

98. *Spizella pusilla* (Wils.). Field Sparrow.

A common summer resident.

99. *Junco hyemalis* (L.). Slate-colored Junco.

An abundant winter resident.

100. *Peucaea aestivalis bachmanii* (Aud.). Bachman's Sparrow.

This interesting sparrow is a rare summer resident of the county. Two sets of eggs have been secured and perhaps a half dozen birds taken.

101. *Melospiza fasciata*. (Gmel.). Song Sparrow.

Resident; abundant in summer.

102. *Melospiza lincolni* (Aud.). Lincoln's Sparrow.

Rather rare migrant.

103. *Melospiza georgiana* (Lath.). Swamp sparrow.

Migrant,—not common.

104. *Passerella iliaca* (Merr.). Fox Sparrow.

A common early spring migrant. March 14, 1886.

105. *Pipilo erythrophthalmus* (L.). Towhee.

An abundant bird in summer, an a few are found to winter in favorable situations.

106. *Cardinalis cardinalis* (L.). Cardinal.

A common resident.

107. *Habia ludoviciana* (L.). Rose-breasted Grosbeak.

Not uncommon during migrations, but rare during the summer. April 23, 1886.

108. *Passerina cyanea* (L.). Indigo Bunting.

An abundant summer resident. April 24, 1886; May 13, 1882.

109. *Spiza americana* (Gmel.). Dickcissel.

Summer resident,—common.

110. *Piranga erythromelas* Vieill. Scarlet Tanager.

Moderately common summer resident. May 6, 1882; April 22, 1886.

111. *Piranga rubra* (L.). Summer Red-

bird.

A common summer resident. I do not know that this species has been seen further north in the state, except at Terre Haute. April 28, 1886.

112. *Progne subis* (L.). Purple Martin.

A common summer resident in the city. March 28, 1886.

113. *Petrochelidon lunifrons* (Say.). Cliff Swallow.

A rather common summer resident.

114. *Chelidon erythrogaster* (Bodd.). Barn Swallow.

Summer resident,—common.

115. *Tachycineta bicolor* (Vieill.). White-bellied Swallow.

Spring and fall migrant; not often seen.

116. *Clivicola riparia* (L.). Bank Swallow.

A common summer resident.

117. *Stelgidopteryx serripennis* (Aud.). Rough-winged Swallow.

Summer resident; not common about Bloomington, but abundant on the White River at Gasport, where nearly completed nests were found May 8, 1886.

118. *Ampelis cedrorum* (Vieill.). Cedar Waxwing.

A common summer resident. Flocks of ten to twenty frequently seen about the city.

119. *Lanius ludovicianus excubitorides* (Sw.). White-rumped Shrike.

Apparently a rare resident.

120. *Vireo olivaceus* (L.). Red-eyed Vireo.

A familiar and abundant summer resident. April 23, 1886.

121. *Vireo philadelphicus* (Cass.). Greenlet.

A rare summer resident.

122. *Vireo gilvus* (Vieill.). Warbling Vireo.

A common summer resident. April 26, '86.

123. *Vireo flavifrons* Vieill. Yellow-throated Vireo.

A common migrant. April 17, 1886.

124. *Vireo noveboracensis* (Gmel.). White-eyed Vireo.

A rare summer resident.

125. *Mniotilta varia* (L.). Black-and-white Creeper.

Summer resident, frequent along streames.

126. *Helminthorus vermivorus* (Gmel.). Worm-eating Warbler.

This beautiful and interesting warbler seems to be a rather common summer resident here. I have seen several specimens, particularly among the hills north-east of the city, where, on May 13, 1886, I found a nest containing five eggs of this species and two of the cowbird. Mr. W. S. Blatchley found a nest of six and one cowbird one day earlier. Both of these nests were situated on a hillside and in each case at the base of a small shrub. All the eggs were fresh. Returned from south May 4, or earlier.

127. *Helminthophila pinus* (L.). Blue-winged Yellow Warbler.

Common during the spring migrations and probably a rare summer resident. April 27, 1886.

128. *Helminthophila chrysoptera* (L.). Blue Golden-winged Warbler.

A rare migrant. One shot by G. G. Williamson.

129. *Helminthophila ruficapilla* (Wils.). Nashville Warbler.

Common spring and fall migrant. April 27.

130. *Helminthophila peregrina* (Wils.). Tennessee Warbler.

Spring and fall migrant, but apparently less common than the preceding.

131. *Compothypis americana* (L.). Blue Yellow-backed Warbler.

Migrant, but not often noticed.

132. *Dendroica tigrina* (Gmel.). Cape May Warbler.

A rather rare migrant.

133. *Dendroica aestiva* (Gmel.). Summer Yellowbird.

Common in the spring, and a few breed. May 1, 1886.

134. *Dendroica caerulescens* (Gmel.). Black-throated Blue Warbler.

Spring and fall migrant, not common.

135. *Dendroica coronata* (L.). Yellow-

rumpe'd Warbler.

This is the only one of the warblers which is a winter resident in this part of the state. Several specimens were seen west of the city February 10, 1883; March 15, 1886; February, 1887.

136. *Dendroica maculosa* (Gmel.). Black-and-yellow Warbler.

A common spring migrant.

137. *Dendroica caerulea* (Wils.). Cerulean Warbler.

An abundant spring migrant. April 27, 1886.

138. *Dendroica pennsylvanica* (L.). Chestnut-sided Warbler.

A common spring migrant May 4, '86.

139. *Dendroica castanea* (Wils.). Bay-breasted Warbler.

Spring migrant, not so common as the last. May 4, 1886.

140. *Dendroica striata* (Forst.). Black-poll Warbler.

Spring migrant, not very common.

141. *Dendroica blackburnæ* (Gmel.). Blackburnian Warbler.

Spring migrant, but not common. April 27, 1886.

142. *Dendroica dominica albilora* Baird. Sycamore Warbler.

Not uncommon summer resident, breeding near water-courses. April 16, 1886.

143. *Dendroica virens* (Gmel.). Black-throated Green Warbler.

An abundant spring and fall migrant. May 4, 1886.

144. *Dendroica palmarum* (Gmel.). Yellow Red-poll Warbler.

Common spring migrant. May 6, 1885.

145. *Seiurus aurocapillus* (L.). Golden-crowned Thrush.

A common summer resident. April 24, 1886.

146. *Seiurus noveboracensis* (Gmel.). Water Thrush.

A rare migrant; probably breeds.

147. *Seiurus motacilla* (Vieill.). Large-billed Water Thrush.

Probably a rare summer resident.

148. *Geothlypis formosa* (Wils.). Kentucky Warbler.

A not infrequent summer resident. Found breeding on the hillsides north-east of town. May 6, 1886.

149. *Geothlypis agilis* (Wils.). Connecticut Warbler.

A rare spring migrant.

150. *Geothlypis trichas* (L.). Maryland Yellow-throat.

A common summer resident. April 28, 1886.

151. *Icteria virens* (L.). Yellow breasted Chat.

152. *Sylvania mitrata* (Gmel.). Hooded Flycatching Warbler.

Rare spring migrant. May 8, 1886.

153. *Sylvania pusilla* (Wils.). Black-capped Flycatching Warbler.

A rare migrant. May 8, 1886.

154. *Sylvania canadensis* (L.). Canadian Flycatching Warbler.

Spring migrant,—more common than the two preceding. April 27, 1886.

155. *Setophaga ruticilla* (L.). American Redstart.

Usually a common summer resident, but very few were seen in 1885 and 1886.

156. *Mimus polyglottos* (L.). Southern Mockingbird.

This southern species appears to be a very rare summer resident about Bloomington. The only individual I ever saw in the county was noticed in the cemetery west of town April 29, 1882 (*Vide* Ornithologist and Oologist for April, 1883). Mr. Chas. H. Bollman has seen it on one or two occasions, I believe.

157. *Galeoscoptes carolinensis* (L.). Catbird.

A common summer resident. April 18, 1886.

158. *Harporhynchus rufus* (L.). Brown Thrasher.

A common summer resident. March 28, 1886. Full sets of eggs May 22, 1882.

159. *Thryothorus ludovicianus* (Lath.). Carolina Wren.

Permanent resident, not very common.

160. *Thryothorus bewickii* (Aud.). Bewick's Wren.

A rather common summer resident.

161. *Troglodytes aedon* Vieill. House Wren.

Summer resident, less common than Bewick's.

162. *Troglodytes hiemalis* Vieill. Winter Wren.

Winter resident, not rare.

163. *Cistothorus palustris* (Wils.). Long-billed Marsh Wren.

Migrant, not common. May 13, 1886, one seen.

164. *Certhia familiaris americana* (Bonap.). Little Brown Creeper.

Frequently seen in the winter and early spring.

165. *Sitta carolinensis* L. White-bellied Nuthatch.

A common permanent resident.

166. *Sitta canadensis* L. Red-bellied Nuthatch.

Apparently a rare winter visitant,—seen oftenest in Turner's Grove. February 10, 1883.

167. *Parus bicolor* L. Tufted Titmouse. An abundant permanent resident.

168. *Parus atricapillus* L. Black-capped Chickadee.

169. *Parus carolinensis* Aud. Long-tailed Chickadee.

These two forms seem to be almost equally common,—both being permanently resident.

170. *Regulus satrapa* Licht. Golden-crowned Kinglet.

Rare winter resident. Feb. 10, 1884.

171. *Regulus calendula* (L.). Ruby-crowned Kinglet.

This with the preceding is occasionally seen in winter in Turner's grove, and in early spring both are rather common migrants.

172. *Polioptila caerulea* (L.). Blue-gray Gnatcatcher.

Common summer resident. April 12, '86.

173. *Turdus mustelinus* Gmel. Wood Thrush.

A common summer resident. Eggs May 6, 1886.

174. *Turdus fuscescens* Steph. Wilson's Thrush.

Spring and fall migrant, moderately

common, May 13, 1883.

175. *Turdus aliciae* Baird. Gray-cheeked Thrush.

Common migrant.

176. *Turdus aonalashkæ pallasii* (Cab.). Migrant.

177. *Merula migratoria* (L.). American Robin.

An abundant summer resident, and a rare permanent resident in protected places. Full sets of eggs found as early as May 5. Few seen Feb. 10, 1883, and a great number, perhaps 500, Feb. 16, of same year.

178. *Sialia sialis* (L.). Bluebird.

An abundant summer resident. A few remain all winter in suitable places. Jan. 12, 1883; Jan. 1, and 3, 1887. Full set eggs found April 4, 1882.

### A Springtime Memory.

Between low lines of dark and thorny hedge  
The lonely road outstretches far away  
O'er little hills and plains, and oft the sedge  
And rough-built bridge reveal where  
some brooks stray  
From field to field across the farms. Not gay  
Is Nature's garb, yet coming loveliness  
Is hinted at, tho' March is never May,  
But, after winter's pallor, this new dress  
Is bright with glad foreknowledge how the  
year shall bless.

Somewhere mid yonder orchard's apple  
trees

There lurk the messengers that blithely tell  
The meaning of this warm and balmy  
breeze,

And why those lambskins frisk, why young  
buds swell,

Why o'er the greening grass the sunlight  
fell

So pleasantly just now. No russet wing  
Nor scarlet breast I see, yet winter's knell  
Is echoed in that robin's chirruping;—

Alas! the song is sadder than it was one spring.

There is a certain narrow path that leads  
Down to a lane unfrequented by teams.

The chirp, chirp of yon robin quickly  
speeds

Fond memory to that dear place which  
seems,

In moonlit summer nights, fit home of  
dreams.

Ah! when in springtimes of the long ago,  
Reviving in the sun's returning beams,

The earth rose beautiful from tomb of  
snow,

Beside that orchard path bird songs ne'er  
told of woe. T. G. LAMOILLE.

### Suggestions for Forming Collections of Birds' Eggs.

BY ALFRED NEWTON.

(Continued from Page 124.)

#### CONCLUDING OBSERVATIONS.

The collector should steadily refuse any but the most trifling remuneration for nests or eggs taken and brought to him. As a rule, the eggs of the different species of plovers and sandpipers (*Charadriadæ* and *Scotopacidæ*) are those most wanted by oologists of all countries. These birds mostly breed in high northern latitudes, but they often choose elevated spots for nesting in more southern parallels. Their nests are nearly always difficult to find, even when the birds are discovered. Their habit is, if the ground be at all rough with herbage, to run off the nest for some distance before taking wing, as the observer approaches; if the ground be bare, they will try to escape observation until they are almost trodden upon. The best method of finding them, and indeed the nests of some other species, is for the collector to conceal himself near the place where he has reason to believe the eggs are, and to endeavor to watch the bird as she returns to her nest—using a telescope, if necessary; but should this fail, after giving her time to settle herself upon it, to fire off a gun suddenly, or spring up and shout, when the bird, in her surprise, will often at once take wing from the nest, or at least without running many yards. To reach the nests of rock-building birds, a man or boy can be lowered by a rope from the top, when it is accessible. The rope should always be tied under the arms of the person lowered, as substances, detached from above by the friction of the rope, may, by falling on him, stun him for a moment, and cause him to lose his hold. But in all places and at all times an egg-collector should recollect that identification and authentication are his main objects, to attain which no trouble is too laborious, no care

too great.

In last issue, *fig. 4a* represents a piece of thin wire long enough to pass entirely through the tubes, which should be always kept at hand by the operator, to remove obstructions likely to occur from small pieces of the embryo, or half-dried yolk, being accidentally drawn into the tubes or blowpipes.

*Fig. 8*, in last issue, shows a piece of paper, a number of which, when gummed on to an egg, one over the other, and left to dry, strengthen the shell in such a manner that the embryo scissors can be introduced through the aperture in the middle and worked to the best advantage, and thus a fully formed embryo may be cut up, and the pieces extracted through a very moderately sized hole; the number of thicknesses required depends of course greatly upon the size of the egg, the length of time it has been incubated, and the stoutness of the shell and the paper. Five or six is the least number that it is safe to use. Each piece should be left to dry before the next is gummed on. The slits in the margin cause them to set pretty smoothly, which will be found very desirable; the aperture in the middle of each may be cut out first, or the whole series of layers, may be drilled through when the hole is made in the egg. For convenience sake the papers may be prepared already gummed, and moistened when put on (in the same way that adhesive postage labels are used). Doubtless, patches of linen or cotton cloth would answer equally well. When the operation is over, a slight application of water (especially if warm), through the syringe, will loosen them so that they can be separated from one another and dried to serve another time. The size represented in the sketch, (*Fig. 8*, last month.) is that suitable for an egg of moderate dimensions, such as that of a common fowl.

*Observations*—The most effective way of adapting this method of emptying eggs, is by using *very many layers* of thin

*paper and plenty of gum*, but this is of course the most tedious. Nevertheless, it is quite worth the trouble in the case of really rare specimens, and they will be none the worse for operating upon from the delay of a few days, caused by waiting for the gum to dry and harden. The naturalist to whom this method, first occurred, has found it answer remarkably well in every case that it has been used, from the egg of an eagle to that of a humming bird, and among English oologists it has been generally adopted.—*Extract from Smithsonian Bulletin No. 139.*

## GEOLOGY.

This department is conducted by W. R. Lighton, Leavenworth, Kan. All inquiries and communications under this head should be addressed to him.

### Economic Geology.

#### FIFTH PAPER—LIME AND CEMENT.

In this paper I shall make some few suggestions which I hope may be of assistance to you in the determination of the value of the materials which are used in the manufacture of Lime and Cement.

What is called "Quick-lime" or the lime of commerce, for making the mortar used in ordinary masonry, is, as you probably know, made from the common "limestone" which occurs so abundantly in all of our stratified deposits in this country. The process of manufacture is this. The limestone is what the mineralogist calls a Carbonate of Lime, or a combination of Carbonic Acid and lime.

To make the quick-lime this rock is piled up loosely in a large furnace or kiln, fire is built beneath it and the limestone is heated to a considerable degree, by which operation the Carbonic Acid is liberated and driven off in the form of gas and the lime remains. This is not a simple element, but an oxide, or a union of oxygen with the metal, calcium.

Here then, we have quick-lime. Among the curious characteristics of this mineral is its capability of absorbing and uniting with itself a quantity of water.



which union, as I have told you before in this series of papers, is what the mineralogist means when he speaks of a mineral being "hydrated". In popular language this process in lime is called "slaking". If you will pour water upon quick lime you will see this process going on, the two uniting so violently as to generate a great amount of heat and steam. When quick-lime is exposed to the action of the atmosphere it becomes "air-slaked" by the absorption of moisture from the air.

In making mortar, quick-lime is mixed with water, together with quartz sand. The silica or quartz loses its fixed character in the presence of the lime, and a union of the quartz and lime occurs, and this, when it has been allowed to dry and harden is in a measure unaffected by water. When we know just what the action is which takes place we see that the firmness and consequent value of the mortar must depend upon how completely the lime and quartz are combined, and we can see that the combination is rendered more perfect and complete by the use of a fine grained sand than by the use of a coarse grained one.

In the manufacture of lime to be used for this purpose it is necessary that a pure limestone be used, that is, one which is free from any admixture of foreign substances which would, upon the burning of the stone, render the lime less pure. Many of our extensive beds of limestone are what is called dolomitic or magnesian limestone, that is, they are composed of a compound carbonate of lime and magnesia, and many times this material is burned for quick-lime, but the lime is not of so great value as if obtained from a pure lime-stone. The physical structure is so much alike in the pure lime-stone and the magnesian variety that it is difficult to distinguish between them without making a full chemical analysis, but they may be distinguished with some degree of certainty by putting a fragment of the stone into a dilute

solution of muriatic acid. In the case of the magnesian limestone the action of the acid is more slow and the effervescence or liberation of the carbonic acid in the stone is less free than in the pure limestone.

There is a limestone of a peculiar character and composition called "Hydraulic cement" which has the property of "setting" or becoming solid in water, and it is from this property that it gets its name.

The stone consists of carbonate of lime together with silica or quartz in a finely divided or powdered condition, and also alumina or clay, and sometimes it is magnesian as well.

The making of lime from this stone is carried on just as is the making of ordinary lime, the stone being burned to drive off the carbonic acid. The peculiarities of the stone are not yet fully understood: Many times two beds which appear upon chemical analysis to be nearly or quite identical will produce very unlike results upon being made into cement, this seeming to depend quite largely upon the physical nature of the stone and the manner of treatment. Many stones in which the proportions of these materials—carbonate of lime, silica, clay, etc. vary considerably yet possess hydraulic properties, so it may be said that the only really reliable test of the value of a hydraulic limestone is the practical one of making it into cement and submitting this to the actual trial. It is safe, though, when you have found a limestone containing silica and clay to experiment with it upon the supposition that it possesses the desired properties.

When we remember that in the case of common mortar that in which very fine grained sand is used is the best fitted to withstand the action of water when it has set, it is only rational to suppose that the hydraulic property of the cement in question is due to the existence of the silica in an extremely fine state, and also to the presence of the clay, which you

will remember is a *silicate*.

Plaster of Paris is not very extensively used as a cement, but I shall speak of it as a product of one of the salts of lime which possesses peculiar characteristics of the nature which we are discussing. Plaster of Paris is made by the burning of gypsum or sulphate of lime, just as lime-stone is burned in making quick-lime. The sulphuric acid is driven off by the heat and the product when ground into plaster and mixed with water, will "set" as does the hydraulic cement before mentioned. This material is extensively used as a fertilizer for poor soils, but is little used as a cement or plaster, its principal value being in the making of castings and in decorative work.

Gypsum is sometimes, more especially when granular or massive, difficult to distinguish in appearance from the common carbonate of lime, but the test with muriatic acid is a simple and sure one, as the gypsum will not effervesce as does the limestone under the acid. Another test may be made with the blowpipe; the gypsum will whiten and crumble easily at a low degree of heat, while it requires a considerable greater heat to reduce the carbonate.

W. R. L.

### Spider's Eyes.

The more you study into things, the more wonders you will find, even in things so small as the eyes of a spider. Eight is the usual number a spider has, and in each branch of the family they are differently arranged to suit their way of life. Those which live in caves, or dark holes, and need to see only before them, have all the eyes in a group on the front of the head. Spiders which live in a web have the eyes raised so they can see all about them, and those of the family which travel about and hunt their prey have them more scattered. They are very beautiful, too—looking under a microscope like round, polished diamonds.

—Ex.

### An Aerial Village.

Just across the Kankakee river, some twenty miles from Valparaiso, and in the center of a dismal swamp, is an aerial village. A village among the trees; the dwellings being from fifty to seventy feet up, with from one to six and seven in a tree, according to its size. The ground, for miles and miles (along the river,) is, at this season of the year covered with deep, cold water. The closeness of the trees, together with a tangled growth of high underbrush, makes it impossible to see very far in any particular direction. Locomotion is extremely slow and difficult for pedestrians, although the residents of the village move in and out with the greatest of ease.

The people living along the bluffs, have frequently heard of this peculiar village, though none could be found who had ever visited it. Consequently the instructions we received for reaching the place were rather meager. However, after laboriously wandering for several hours (not more than a mile) it was sighted to our extreme left, we having almost passed by it. As we splashed along into the town, or rather under it, any number of slender blueish necks thrust out as many long, yellow bills, with an inquiring note of alarm, which was presently increased, as my friend raised his gun and brought sprawling to the ground, a "bunch of blue feathers a pair of long legs," and one of the afore mentioned long necks and yellow bills.

I was armed with a pair of climbers and a basket. The walk to the town was so excessively fatiguing that but two houses (heaps of brush about the size of a bushell basket) were inspected. In each were found four beautiful blue eggs. The hundreds of similar homes immediately surrounding, also bore evidence of eggs.

One great blue heron, (for our village was a heronry or, as natives styled it, "crane town,") is not very heavy, but six more dangling on one's back, with footing extremely uncertain, made it no child's play to quit the town. Reaching the base of the bluff two mortals dropped to the ground completely exhausted. After a few minutes rest, rubber boots were pulled off, water poured out, pants and stockings wrung dry and shouldering the birds we started for the boat, and home.

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VALPARAISO, IND., MAY. 1887.

## ERRATA.

Page 137, No. 1, 1st line; for *Codilymbus* read *Podilymbus*.

Page 140, No. 76, 3rd line; for *parasite* read *parasitic*.

The June HOOSIER NATURALIST will not appear until the latter part of that month.

The Indiana Academy of science meets May 19, and 20, at "Shades of Death," in Parke County, Indiana.

The new edition of Coues' Key to North American Birds is now ready. We will give an extended notice of same in next issue. The price is but \$7.50.

Orders sent to us will receive prompt attention.

At this season of the year an egg check list is invaluable to every one collecting eggs. Oliver Davie's Key to the eggs and nests of North American birds meets every requirement for field or home study and identification. It has about 200 pages and besides is embellished with seven magnificent full page engravings executed

by that venerable and renowned artist and naturalist, Theodore Jasper, A. M., M. D. The price for so valuable a work, to the naturalist and collector, is, really, very cheap, yet by purchasing in large quantities (all there are remaining) we are enabled to offer the book prepaid for \$1.00 and will also mail the HOOSIER NATURALIST for one year, to every purchaser through us. A more liberal offer could not be made.

All old subscribers desiring the book can have their subscriptions extended.

We can supply the trade at prevailing discounts.

THE Santa Barbara, Cal., Society of Natural History has favored us with a Report of its proceedings, from its organization, in 1876, to 1887. It presents the following table of contents:

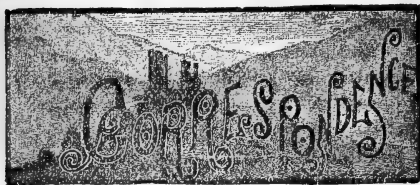
Notes on Climate, Dr. L. N. Dimmick; Infusorial Earth of Santa Barbara, Cal., Dr. W. W. Finch; Notes on Excavations made in Indian Burial Places in Carpinteria, H. C. Ford; Flora near Santa Barbara, Cal., Mrs. R. T. Bingham; The Water Birds of San Miguel Island, Clark P. Streater; Prehistorical Man in California, Dr. Lorenzo G. Gates.

WE have also received the "Birds of Amherst and vicinity, including nearly the whole of Hampshire county, Mass.," by Hubert L. Clark, with an introduction by Prof. C. H. Fernald, Ph. D.

The Key is a pleasant feature of the work, and is somewhat simpler and easier for a beginner than others we have seen. It however, identifies only the one hundred and seventy-seven birds described in the text. The work is a valuable addition to ornithological literature. We were, nevertheless, surprised that so few species are recorded for the county, particularly the water birds.

The list of Monroe county, Ind., however, published in this issue, enumerates but one more species.

Of the one hundred and seventy-seven species occurring at Amherst and vicinity, one hundred and forty-three species are found in the Monroe county list. Thirty-four species appearing in Hampshire County not found in Monroe Co., and thirty-four species being found in Monroe Co. and not in Hampshire.



## AND TAXIDERMISTRY.

MR. EDITOR:—Can you tell me, through the HOOSIER NATURALIST, the best way to soften a skin, (such as wild cat or fox,) to be used for rug or similar purpose.

Enclosed find subscription price of H. N., which I like very much and think is steadily improving. Yours truly,  
J. VANDENBURGH.

KENESAW, NEB., MAY 2, 1887.

EDITOR HOOSIER NATURALIST:—I notice in the Feb. No. of the HOOSIER NATURALIST an article in reference to sore fingers caused by getting arsenical soap under the nails and asking for a cure for same.

If any one troubled in that way will procure a little zinc salve and apply at once it will not fail to cure it.

P. E. H.

EDITOR HOOSIER NATURALIST:—"C. H. H.," of Louisville, Ky., asks in Feb. H. N. for antidote for arsenical poisoning, caused by the poison getting under the finger nails. I know of no *antidote* save *prevention*. I wash my hands often while using the arsenic, and in addition paint around and under the nails with collodion, which, if of good quality, will form a strong artificial skin. A camel's hair brush is used to apply the collodion. The brush should be kept inside the bottle, the quill end being inserted in the rubber stopper. Let the collodion run well under the nails, give all "hang-nails," cuts and scratches a coat of it, and let it get dry before going to work. Another

protective solution, less liable to crack than collodion, is the caoutchouc, or India rubber solution, which can be had of druggists. Water has no effect on either of the above. Sometimes I use shellac varnish as a protective paint, as it dries quick. Putty is good, also the clay that taxidermists use, while melted tallow might answer. Medical students, in dissecting, fill their finger nails with bar soap. This has the merit of washing out easy. But for security give me the three fluid protectors, for they stick and one feels safe.

Mr. Jas. M. Southwick, of Providence, R. I., advocates a preservative composed of one-third alum powder to two-thirds arsenic by weight. Alum being an astringent, acts to close the pores of the skin, thus lessening the chances of poisoning, and it also has a beneficial effect on bird skins with loose feathers.

G. G. DICKEY, Acworth, N. H.

LIMA, OHIO, APRIL 25, 1887.

EDITOR HOOSIER NATURALIST:—On April 21, a bird which is rarely found in this section of the country, was brought to me to be mounted. The head is black glossed with green and purple, and the cheeks and back of the neck are black without the green gloss; the back is black variegated with short white streaks. It has a white collar with black stripes and nine white stripes under the throat. The beak is black and pointed, and the breast is white. Length 2 ft. 8 in.; extent, is 4 ft. 4 in. It has web feet, and like the grebes, the feet and legs are set pretty well back. It was shot about five miles east of this place on the Ottawa river. Will you please tell me what kind of a bird it is? I think it is a great northern diver.

F. M. L.

[The largest of the three loons in our possession measures but 26 in. in length and he is, we think, unusually large.—ED.]

Replying to "C. O.," the bird sent is a song sparrow.

EDITOR H. N.;

We have had a severe winter, a late spring and in consequence the bird arrivals are later than common.

For March, saw two crows on the 12, becoming common 15, to 18; 3 bluebirds 18, becoming common 21, to 25; a golden winged woodpecker 29. During April, robins appeared on the 4, becoming common 6, to 8. On the 8, saw two red-tailed hawks. Shot one, a male. Saw a chipping sparrow on the 9, they becoming common on the 10, and 11. A flock of pewees appeared on the 10, becoming common on the 11, and 12; one song sparrow on the 13, common on the 16, to 18; one chimney swift on the 15. Heard a whip-poor-will on the 17, and on the same date saw a catbird. On the 20, saw one purple grackle, two chewinks, five cowbirds. On the 21, saw a red-headed woodpecker, and two green herons. This morning, (15,) saw two scarlet tannagers, and one barn swallow.

NIX, TUNBRIDGE, VT.

### A Few California Birds.

BY THEO. E. BARLOW.

Since I have never seen much in your paper concerning our birds, I send a few brief notes hoping they may be of some interest to eastern readers.

No. 7a. Western Robin. This is one of our winter visitors, coming in large flocks once in three years, arriving here about Nov. and leaving Mar. 1. Why they do not come every year I can not tell. They have been known to breed in this vicinity. Their eggs are a trifle larger and darker than the eastern species.

No. 23. California Bluebird. This bird like several others we have was unknown here a few years ago. Last year I obtained a set of four eggs from an old apple tree. They were similar to the eggs of the eastern species.

No. 63a. Western House Wren. This little bird was also not seen here until April '85. A friend of mine found a nest

containing young ones, April 29, 1887. The nest was very bulky. It was in a deserted house.

No. 149a. White Rumped Shrike. This bold bird is an old settler. He can usually be seen sitting on the highest point of a fence or telegraph pole surveying the ground beneath for crickets, bugs, mice and young birds if he can get them. In the winter of 1886 I saw a butcher bird kill a towhee (240b) by crushing the back of the skull. In 1886 I took four sets from one pair of these birds, 3 of 6 eggs and one of 5 eggs, between Apr. 9, and May 29. The eggs are usually light gray with spots of light brown and purplish grey. The ground color is often light green; this variation often occurs in eggs of the same set. The nest is made very warm and bulky and always containing a strong smelling white weed which is a distinguishing characteristic.

### An Unsuccessful "Hunt after 'Lunas."

It occurred early on a June morning in a hickory grove on the road between Glens Falls and Sandy Hill, and was conducted by two members of Chapter 711; its object was the capture of any entomological specimens, but particularly desired and searched for was *Attacus luna*, the most beautiful of all American moths. The chapter's cabinet was without one of these desirable individuals, and that was the reason why two of its members had ventured forth at the unseemly hour of four A. M. and provided with net, collecting box, etc., had started for the supposed home of *Attacus luna*. To any one who is not in the habit of going out into the woods and fields before the sun rises, the general appearance of things is rather strange; we did not wait to consider that fact very long, however, and only stopped to capture a sleeping dragon-fly, who was, no doubt, much surprised to wake up and find himself inside a cyanide jar, just going to sleep again.

As soon as we entered the grove we

felt that we had a splendid opportunity for studying one phase of insect life, and although we did not appreciate our advantages the mosquitoes did theirs and improved them. The caterpillar of the luna moth usually feeds on the leaves of the hickory, forming his cocoon upon or around one of them, which falls from the tree with the other leaves in the autumn. The moth emerges from the cocoon in June, and is often to be found on the tree trunks early in the morning before the sun has warmed his wings so he can fly away. We made a thorough investigation of the grove but found nothing at all relating to the object of our search, excepting a chrysalis "shell" from which a luna moth might have come at some period in the distant past.

Although disappointed in this respect, we found many objects which would provide us with material for investigation. On a number of trees we found the curious "leaf-roller" larva which beginning at the apex or the side of a leaf rolls it into a tube, fastening it with a gummy substance like the silk of caterpillars. The tube thus formed furnishes the occupant with food, and, also protects him from the heat of the sun. We also found numerous gall-like growths, each of which contained a parent aphid and a large family of young.

As our time was limited we started for home, arriving at the main road just in time to see the early horse car coming up. A hasty but thorough investigation showed a total absence of available capital and so we decided to walk. A little way up the road we stopped to look at a pool of stagnant water and found what we considered a curious water insect. It was a little larger than a silver quarter, of an oval shape, and it swam and dived with ease. But its most peculiar feature was that its back was covered with little cells most of which contained a single egg, a few however, being empty. We took it home and placed it in a shallow tank of water, intending to make a close

examination of it, but the next day the insect had disappeared. Farther up the road we stopped to look at a mining project which was being carried on at a sand bank near the road; after viewing the regularity and depth of the tunnels, and proving the inconsistency of the material out of which they were being excavated by attempting to climb up the bank, we came to the conclusion that swallows, as mining engineers, are very successful. Arriving at the Academy about 7 o'clock, we left our numerous specimens for the edification of the Chapter, agreed upon the fact that we had employed about three hours to the advantage of our minds and bodies and that the trip was well worth repeating. — *The Owl*. A quarterly Magazine published at 20c. per annum and sent as a premium with the HOOSIER NATURALIST.

### Nesting Under Difficulties.

On May 17, 1886, I discovered a pair of blue-gray gnatcatchers building a nest on a horizontal limb of an oak tree, about thirty feet up. On May 28, I again visited the tree and found the birds had taken their departure, but as the nest appeared to be a large one, I ascended the tree to obtain it, and on examining it I found that a cowbird had deposited an egg before being occupied by the owners. They had then put in more lining, covering it entirely over, and had built up the sides of the nest about three-fourths of an inch higher, but had finally concluded to abandon it, and were found building another nest a few rods from there. This goes to show that they do not willingly submit to the intrusion of the cowbird. — Samuel Speer in *Ornithologist and Oologist*.

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THE

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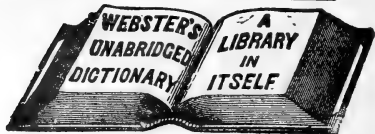
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# THE HOOSIER NATURALIST.

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## Welcome June.

The robins are chirping of rain  
Along the bloom-scented lane;  
The thrushes,  
In gushes  
Of music, are telling  
The secret  
They know yet,  
For joyous notes swelling.  
The grass that is greening  
By that dusty highway;  
The leaves that are screening  
This lovers' by-way,  
Repeat the message  
Yon birds are chanting:—  
That now her blessings  
Dear June is granting.  
T. G. LA MOILLE.

## A School Museum.

In the April number of THE HOOSIER NATURALIST is an article entitled an "Amateur Museum," describing how "my sister and I" made a "Curiosity shop." This interesting article suggested to a reader how he and his pupils formed a similar collection for his school room. Two years ago a young teacher was employed in a little village school in one of the northern counties of Indiana. The town was small, containing two churches, a store and blacksmith shop; but better than all else there were eighty bright and merry boys and girls, all in a hurry for school to begin and all eager to see the "new teacher." After school had been going on in the usual way for one week the teacher proposed to his pupils to prepare a museum, using the old globe case for a cabinet.

Preparatory to collecting rocks and minerals, several lessons used as opening exercises, were given upon granite, syenite and the common quartz rocks or silicates. For instance, each pupil on his way to school in the morning obtained a fragment of granite. After school was opened the lesson was conducted after this manner:

TEACHER. How many colors can you distinguish in this rock?

PUPIL. Three.

TEACHER. What are the colors?

PUPIL. Red, white and black.

TEACHER. Try and see if the black colored mineral will come off in little scales?

The pupils see at once that it does this and then they learn the name mica, and that they are familiar with its use in stove doors. They have been accustomed to call this substance isinglass.

During the course of these lessons the pupils learned how granite is broken up and what part the different minerals play in making the soil. After these lessons some representative specimens of quartz, hornblende, feldspar, granite and syenite were obtained and placed in the cabinet.

The teacher then asked the pupils if they had, at their homes, arrow heads, Indian axes or pretty stones; many hands were raised, and the next morning they brought curiosities of various kinds. Flints, gorgets, quartz-crystals and crinoid stems, which they persisted in calling "Indian Beads"; most of them very common, but all became objects of deep interest when the children learned something of their formation or history. One

little girl brought some limestone which her uncle had sent her from Kansas, in which the shells were quite entire, illustrating the formation of limestone in general. Another brought some Florida moss and a little boy gave some plates of mica which his father brought from Mica Peak, in Washington Terr. Nearly every pupil brought a specimen of beauty or interest, for the school museum.

The teacher added his collection consisting of specimens of lead and copper ore, silurian fossils, cone-in-cone and a number of snakes, lizards and other reptiles, preserved in alcohol. Before the close of the winter term the museum had increased to such an extent that the old globe case was inadequate for the purpose of a cabinet.

It was decided to give an exhibition at the close of the school and charge an admission to raise money for a larger cabinet. The exhibition was held and later in the summer an ice cream festival, the proceeds of which netted sufficient funds to purchase a \$20.00 book-case, which was arranged for specimens as well as books. After the articles of the museum were nicely classified in the cabinet it was taken to the County fair where the premium money obtained was sufficient to buy a number of books for the school library. One bright little girl, Clara Neff, 13 years of age, took a deep interest in insects, collected and classified in their respective orders, 100 Entomological specimens, for which she obtained a premium of \$2.50.

During the Summer months the subject of Botany was made a very entertaining study for the little folks. How interesting it was for them to learn the names and habits of the beautiful flowers that greeted them on their way to school. Only a hint from the teacher and spring beauties, marsh marigolds, dutchman's breeches and johnny-jump-ups came bunched up in little hands in perplexing profusion.

The analysis and preparation of plants

for the herbarium was next in order and was conducted as follows. A sufficient number of flowers were brought by one or two of the children to supply each pupil with one. Of course a close botanical analysis was not made, but the names and uses of the different organs of the flower were ascertained by dissecting it.

Thus about eighty different species of wild flowers were studied and prepared for the cabinet, and their names made familiar to the pupils.

It might be asked, how could time be found for such work in a crowded school? Ten minutes each morning and time during intermission were used to work at the museum. So interested were some of the children that they would remain after school to complete the work. Interest being one of the essential elements in the learners mind, to the acquisition of knowledge, this kind of work should be encouraged to attain it.

H. V. HEBBARD.

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# GEOLOGY.

This department is conducted by W. R. Lighton, Leavenworth, Kan. All inquiries and communications under this head should be addressed to him.

## Economic Geology.

### SIXTH PAPER—IRON AND ITS ORES.

Aside from the question of the purity of an ore, there are several matters which must be taken into consideration in deciding upon the economic value of any particular ore bed, and perhaps the most important of these is geographical distribution and location, as upon this depend the questions of transportation to market, cost of reduction, etc. Of these matters I have nothing to say, but shall confine this paper to a few words upon the comparative value of the more important and common ores with perhaps a few remarks upon the causes which have led to the association and occurrence of the several ores with the rocks with which they are most commonly found.

The iron of commerce, or that form in which it is generally placed upon the market by the furnace, is a carbonate of iron, or a union of Carbon with the metal Iron. The proportion of carbon is varied in the process of manufacture according to the use to which the iron is to be put, and to whether a soft, hard, tough or brittle iron is desired, but it is still a carbonate, and in considering the value of an ore the principal thing to determine is the ease with which it can be reduced to this form.

Of the methods employed in reduction I shall speak later.

Because of its peculiar and striking appearance, the ore with which young students are generally first made acquainted is the one known as Iron Pyrites, or bisulphuret of iron, which is a chemical combination of iron and sulphur. This is not of value in the productions of iron, because of the difficulty of completely separating the sulphur from the iron.

There are many ores which can be much more easily and cheaply reduced. This one is used, however, in various other ways, principally in the manufacture of green copperas, sulphur, sulphuric acid, etc.

The sulphur in this ore is not in the form of sulphuric acid, as in the sulphate, but is simply in combination with the iron and can be disengaged by heating it in a retort; it is driven over, cooled and collected.

The sulphate of iron is produced by exposing the sulphuret or pyrites to the action of the atmosphere; the oxygen of the atmosphere combines with the sulphur, forming sulphuric acid, which in turn is recombined with the iron, forming a sulphate. These processes of decomposition and recombination are hastened by keeping the sulphuret moistened with water, and when the change has taken place the product can be separated from any impurities, etc., mixed with it, by dissolving out the sulphate, which is readily taken into solution by water, and this solution may then be evaporated, leaving the sulphate as crystals.

The liability of mistaking the pyrites for gold upon a hasty or careless examination has been mentioned so many times as to scarcely need repetition here. I will only say that the pyrites may be readily distinguished from gold by being heated in a flame, when if it is pyrites, strong sulphurous odors are given off, which, of course, does not occur with gold.

Gold is also malleable—that is, it can be hammered out into shapes—while the pyrites will crumble easily under blows of a hammer.

The Oxys of iron, because of their wide and general distribution and the ease of reducing them, are the most largely employed of the ores in the production of the iron of commerce. These oxys occur in a great variety of physical forms and under quite a variety of names. In physical forms there is a variation from a loose, soft earth, easily crumbled in the hand, to crystals and compact masses of almost the hardness of quartz.

W. R. S.

(Continued.)

### Construction of Trout Ponds.

The most necessary requirements for the construction of a trout pond is a plentiful supply of pure spring water. The spring, or springs if there are several, should have a fall of two or three feet, and if more than one pond is to be made, a fall of from five to ten feet would be an advantage. The water from a spring near its source remains at nearly the same temperature during the whole year, and is, therefore, the best for trout raising. Brook water which does not rise higher than sixty-eight degrees Fahrenheit during the hottest summer months may be used to supply ponds for adult trout. If the water remains cool enough only during ten months or even more in the year, and then during a dry times gets warmer, it causes the death of all your fish.

It is not, as a rule, a good plan by damming up a stream to make ponds that vary in volume. There should be enough level land by the side of such a stream to make ponds to be supplied by the stream, and it is best to have a stream much greater in volume than is necessary for the ponds. This will always furnish a good supply of water and there will be no trouble with the surplus in case of a freshet.

Trout ponds should be made too small, rather than too large; the fish will be found to thrive much better in small than in large ponds. The water supply may be cool enough on entering the pond to sustain the trout during the entire year, but by spreading it over a large space it presents too much surface to the sun and consequently becomes very warm. Although in such cases the trout will through instinct for self-preservation gather in the vicinity of the inlet and springs, if there are any in the ponds, and save themselves, as far as possible, the probable result will be the loss of many.—Seth Green in *American Agriculturist* for June.

### Why do Bees and Wasps Sting.

Their weapons often serve to protect them from their enemies, but with bees, especially the honey, or hive bees, at the approach of winter, the drones or males are no longer of any use, and are killed off by the stings of the workers, to save the stores of honey they would otherwise consume. With many of the wasps their stings are food preservers. The large wasps which make their holes in the ground, and some bees, like the carpenter bee, which cut circular holes in boards or other wood, deposit an egg in one of the holes, place food for the grub that will hatch from this egg, to feed upon, and when this grub has made its growth, it goes into the chrysalis state, and in time comes out a perfect bee, or wasp, as it may be. But, you will ask, "what has this to do with the sting?" A great deal. If the caterpillar or other insects, intended as food for the young bee or wasp, were dead, when stored away, it would decay and be useless. The effect of the poison of the sting is to keep it in a semi-torpid existence, alive, but still dormant and thus preserve the food in a proper condition to be eaten by the grub of the bee or wasp. In this respect we can see the sting plays a very useful part, but when the sting is employed upon ourselves, we fail to see what good end is accomplished. Even when a beekeeper is doing his best for the comfort and welfare of his bees, they will often turn upon and sting him, most needlessly and painfully.—*American Agriculturist* for July.

### Ruby-Throated Humming Birds.

ONE of our subscribers writes that he collected last season, six dozen nests and 98 eggs of the ruby throated humming bird, *Trochilus colubris*.

### Parasitic Plants.

One of the most interesting, as well as instructive pursuits, in the study of botany, is the investigation and examination of that form of plant life that grows upon other plants, or parasitic plant life. The parasitic plant should not be confounded with what are known as Epiphytes, or air plants, which, though they are attached in a measure upon some support, yet derive their nourishment from the air through their leaves. The parasites, on the contrary, affix themselves to another plant, obtaining their nourishment from the plant.

It is not generally known how many common wild parasitic plants we have with us. People are laboring much under the hallucination that parasitic plants are only found in foreign countries and are rare. This may be partially correct, as there exist many plants of this class, that in all probability the reader has never had opportunity to examine; but there are those with which we almost daily come in contact. Almost any day, a walk in the woods would reveal to a careful observer, plants that are parasitic in their growth; though, perchance, it would not be known to the collector, unless he was acquainted with the plants or carefully scrutinized them and their manner of growth. Let us glance for a few moments at some of our most common and well known vegetable parasites.

In the first place, they are generally divided into two classes; viz., those having green foliage and those devoid of green foliage of any sort. They likewise may differ in the amount of parasitic nourishment on which they flourish. Some being exclusively attached to the foster plant therefrom deriving all their nourishment; while others obtain part through a few soil roots. The green parasites have digestive organs in the shape of leaves. Their roots strike

directly through the bark, and into the wood of the tree or plant on which it is to grow. The sap, drawn directly from the mother plant, is assimilated by the green leaves of the parasite. One of the most striking and familiar instances of this class, is the far famed and poetic mistletoe. This plant is completely parasitic, being at no time connected with terra firma. It would appear as though the mistletoe were a branch of the plant itself, to a casual observer, so close a junction does it form, as its ascent root penetrates the plant's bark and wood on which it lives. The false mistletoe *Phoradendron flavescens* of the Middle and Southern States, exhibit the same characteristics and may be more easily obtained for examination. Another example of this class is the cursed fig or *Cheslia rosea* of Tropical America. This plant not only derives its nourishment from other vegetable matter, but also sends down aerial roots, by which a portion of its sustenance is drawn up in the ordinary way. Several of our most abundant herbaceous plants, heretofore not accorded the title of parasites, have recently been ascertained to clandestinely fix themselves underground, by means of a few rootlets and furtively draw thence a portion of their food.

This is true of our *Commandra* or bastard toad flax, a common plant which blooms in May and June; as is also the species of gerardia, a very handsome and beautiful plant, species of which occur in all parts of the United States, and bloom from June to September. It has long been known that the gerardias could not be cultivated, though their beauty of colors and shape has long made them desirable for the garden; 'twas not till recent years that it was found to be parasitic upon the roots of other shrubs; and of course this accounted for the utter failure of all attempts at cultivation. Most of the plants we have named in this class, have been seen by most of our

(Continued on page 159.)

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VALPARAISO, IND., JUNE, 1887.

## ERRATA.

PAGE 148, tenth line from the top; for "*The sulphuric acid is driven off*," Mr. Lighton says, that in this burning, the gypsum is not decomposed, but simply de-hydrated—that is, the water which enters into its composition is given off.

## NOTICE.

HAVING discontinued THE PEOPLES' PAPER, we have arranged to have all unexpired subscriptions filled with THE HOOSIER NATURALIST.

PUBLISHERS PEOPLES' PAPER.

## NOTICE.

HAVING discontinued the publication of the Normal and Scientific Journal, I have arranged with the publishers of this Journal to supply all subscribers of the former, with the H. N. in satisfaction of paid up subscription. I trust that, while my subscribers have been kept in suspense for some time by difficulties which I could not avoid, they will be fully compensated by the receipt of a more valuable paper.

I remain, Very truly yours, S. H. Strite.

We have already mailed to the above

April and May numbers.

ALL persons interested in Ornithology or Oology, please send name and address at once for Ornithological Directory. Henry K. Coale, 101 Washington St., Chicago, Ill.

EVERY morning for a long time, a dapper little cat-bird (*Galeoscoptes carolinensis*), perched on a telephone wire over the insignificant Kish-ta-hawk, which rises underneath the heart of our prosperous city, has indoustriously tried to attract our attention as we hurried along after a six o'clock breakfast, to the store and office. Again and again, unable to withstand the fascinating charms of his melodious song, we have stopped to listen, for the nonce rivited to the spot. And it seemed to us that his song grew softer and sweeter, as if, forsooth, honored by our attention, he was exerting himself to please us. No doubt we would be there yet, had not a neighbor boy, with merry shout and whistle, frightened him away.

In one of the show windows fronting No. 39 College, are a number of ornithological and other specimens, arranged with as lifelike surroundings as possible, to attract passers by. Recently a gentleman stopped, and after examining our taxidermal skill, entered with several inquiries and a desire for light on some of the mysteries of the art taxidermy. Being satisfied, tuition was paid and a lesson arranged for the next day. About this time, a youth of not more than eight summers, enquired the price of long half-inch-wide rubber bands. "Going to make a sling-shot out of them" he said, when questioned. Adding, "would kill lots of birds, only mother says its wicked." Here no doubt, was an excellent opportunity to do missionary work: it was, however, allowed to pass, and the lad departed to get some birds for us. In about an hour he returned with a full grown, this

season's robin (*Merula migratoria*) and a cat-bird.

Our suspicions were at once aroused. We imagined him to be our sweet morning songster. Evidently it was as he is missed from his usual perch on the telephone wire. The pang of regret was a sincere one. What a funny world this is of ours any way. Everywhere the smaller and weaker are preyed upon and destroyed by the larger and stronger.

THERE are several papers and magazines ably advocating kinder treatment to all animal life, the most noticeable of these coming to our table being "The Humane Journal" of Chicago, which always comes overflowing with excellent matter explaining, encouraging and advocating this grand cause.

We are glad to learn so much good is being accomplished in this particular field. While the Audubon Society exerts itself principally in behalf of the birds, the Humane Society stretches out its protecting hand, not only for the birds, but for all animals—men, women, and children as well as quadrupeds and birds.

IN Vicks Illustrated Monthly for June the idea of killing the sparrows in towns and cities, as advanced by Secretary Holsinger of the Missouri Horticultural Society, is commented on favorably. We reprint from July, 1886, HOOSIER NATURALIST a few words on this same subject.

A good scheme is to soak wheat, bird seed, or any other substance that they will eat, in a solution of arsenic, then place it in a dish or pan in a sufficiently elevated position to prevent domestic fowls from feeding on it. The sparrow would eat the grain and very probably die. A less cruel way, perhaps, would be to soak the intended food in whiskey and when too drunk to fly, ring their necks. United work of this description, especially in the winter, when they are, apparently, more gregarious, would soon deplete their numbers. We have tried this plan and found it a "sure thing."

## Parasitic Plants.

(Continued from page 157.)

readers and perhaps collected by many; but the plants we shall place in the second class will undoubtedly be still more familiar. There are many plants which are destitute of the usual green foliage and parasitic in their habits. They are generally of a reddish, white or tawny hue, but occur most any color but green. They strike their disks or roots into the bark, (generally that of the root of some other plant) and draw the already elaborated sap, as required for their sustenance. Consequently they have no occasion for digestive apparatus, hence no green leaves. One of the most common plants illustrating this class is the dodder or *Cuscuta*, of which there are many species, most all of which are of the same predacious habit. This plant, as all who have seen it will remember, is parasitic above ground. The plant's seeds germinate in the earth, but when the slender twining stem reaches the surrounding herbage, suckers being formed, they attach themselves firmly to the foster plant and penetrating its epidermis, feed upon its juices. After a time the root and stem perish and leave the plant with no connection with the soil.

One species of the *Cuscuta* infests and greatly injures flax in Europe, and by imported seed, it has been known to make its appearance in our flax fields. The embryo of the dodder is a naked thread, spirally coiled in the seed, and presenting no vestige of cotyledons or seed leaves; thus shadowing the economy of the *Cuscuta* in its after growth. It is generally conceded that parasitic plants of this character usually have certain plants on which they grow, and only on these. When their seeds are distributed, they will not sprout unless deposited on such root or stem as they are destined to grow upon. There are a few, which show no preference, but upon the whole they discriminate so as to grow upon the plant which furnishes the most propitious nutrition. These plants having no foliage are often reduced to a single stalk

and flower. Such is the *Aphyllon uniflora* or naked brown-rape, sometimes called the cancer root. It is a very unique and pretty plant, brownish or yellowish with a purplish flower. It has no leaves of course, but its stem has several small bracts or scales more properly. It grows in woods, attached subterraneously to roots of other plants. It is not at all rare and blooms from April to June. Another excellent illustration of the case in point, is the *Monotropa uniflora* or pine-sap, sometimes known as indian-pipe. It is a beautiful plant in its native haunts, but blackens in drying. It has large bracts instead of leaves and a large waxy nodding flower. It has often been thought that the *Monotropa* partook more of the characteristics of a fungus, in that it looks something like one, and actually lives like one, drawing its nourishment, in greater part, from decaying leaves, among which it grows. The pine-sap is very common in the woods from July to September.

Contrasting to these one flowered parasitic plants we have the many flowered stalks, well shown in the beech drops or cancer root, *Epiphegus virginiana*, which is parasitic in the roots of the beech trees. It is quite common and blooms from August to October. All the *Orobanchaceae* or broom-rape family, afford excellent examples of this class of parasites. Lastly, there is a third style of flowering, where the flower rests directly upon the foster plant. The many species of *Pilostyles*, a plant that thrives on the shoots of leguminous plants, in Tropical America, are good instances of the bud and flower directly parasitic upon a plant. Probably the most extraordinary vegetable production of this kind, is the *Rafflesia Arnoldi* of Summatra, which lives upon the stems of a grape vine. The flower measures nine feet in circumference, and often weighs fifteen pounds. Its color is light orange, mottled with yellowish white spots.

There are of course, very many plants

of the Cryptogamia, which are parasitic in their habits. Almost all species of fungi are of this class. They infest living animals and vegetables, as well as decaying and dead organic matter, and are truly parasitic. There is an entire absence of chlorophyl in the fungi. But these cryptogamous parasites are so numerous, that it is impossible to dwell upon them here. Moreover, they are not so interesting and are not generally cared for by people as are the flowering plants. Though not strictly true, it is believed by many uninformed persons, that all fungi are parasitic and they seemed quite surprised to hear that so many flowering plants are of parasitic habit: and consequently 'tis of more interest and benefit to look into that subject, which opens a wide field for investigation and study.

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I was returning from a hunt for the ariel bipeds some varieties of which are quite numerous in a forest a short distance from here. My path led me across the grounds of an old settler who had adorned them with numerous grotesque rookeries and curiosities of various kinds. In the crown of an old plaster of Paris bust of Napoleon Bonapart, a pair of downy woodpeckers had taken up their abode. And upon remarking of the oddity of the chosen place the old gentleman informed me that the bird had built its nest and reared its young in that great brain for the past three years.

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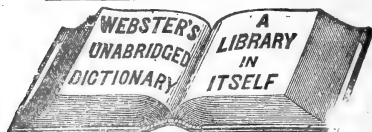
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## A Lesson in Electricity.

BY ADAM STWIN.

"Combs can't blow, can they?"

Could you guess what Johnny ment by such a queer backhanded question? I couldn't nor his sister either. I was quite sure, however, that he meant something sensible if one could only get at it; but Mary was doubtful.

"Blow what?" she asked, not so pleasantly as she might.

"Why, blow air," said Johnny, "to make wind."

"Of course not, you silly child; what makes you ask such a question as that?"

Mary thinks Johnny is a pretty bright little fellow in general, but on particular points she is always ready to call him a dunce without stopping first to find out what he really means to say. The trouble is she knows so little herself that she thinks she knows everything, at least everything worth knowing; and Johnny is all the time puzzling her with questions that she has no answer ready for.

"What have you seen to make you ask that question?" I inquired.

"I didn't see anything," said Johnny; "I just felt it—like some one breathing softly on my face and hand when I held my comb near."

"Nonsense," said Mary; "you just imagined it."

"No I didn't," Johnny insisted; "I felt it really this morning when I was combing my hair."

"Oh," said I, suspecting the cause of his difficulty: "what kind of a comb was

it?"

"A black comb," said Johnny.

"Horn or rubber?" I asked.

"Its a rubber comb," said Mary.

"How did your hair behave when you were combing it?"

"Mean as anything," Johnny replied.

"It stuck up like Mary's when its frizzled, and wouldn't stay anywhere."

Part of that was for Mary's benefit Johnny likes to tease her.

"Did you think the comb made it do that by blowing it?" I asked.

"Not at first," said Johnny; "the comb seemed to crackle, and I put it to my ear to listen; then I felt the wind on my cheek."

"Suppose you bring the comb here," said I, "and show us what it did."

Johnny ran off for the comb, but came back quite crestfallen.

"It wont do it now," he said.

"As much as ever!" cried Mary triumphantly.

"But it did this morning, truly," he said, rather humbly.

"Pshaw" said Mary, "you imagined it."

Like many another discoverer, Johnny had to learn what it is to be discredited and ridiculed for knowing too much. Because Mary had never noticed what he described, she was as ready as older people to cry "nonsense," "impossible," and all that sort of thing, without stopping to consider whether he might not be in the right after all.

"You had better try it again some other day," I said to Johnny. "Try differ-

ent combs. Try in the dark, too."

"What for?" Johnny asked.

"You might see something," I said.

"In the dark?"

"Yes in the dark."

Johnny wondered how that could be; and he wondered still more when I suggested that it might be a good plan to try the comb also on Humpty Dumpty—that's his shaggy dog.

Two or three mornings after Johnny came pounding at my door before breakfast; when I let him in he cried; "It blows now, sure!"

"What blows?"

"Why! the comb."

I took the comb from his hand and putting it to my cheek said, "I don't feel any wind from it."

"That isn't the way," he said, reaching out for the comb. "You must do this first," and he ran the comb rapidly through his hair a few times, then held it to his cheek, saying, "I can feel it, plainly."

"See if it will blow these," I said, stripping some bits of down from a feather and laying them upon the table.

Johnny repeated the combing, then held the comb near the down, expecting to see the light stuff blown from the table. To his great surprise it was not blown away at all, but on the contrary it sprang suddenly toward the comb, then dropped off as suddenly.

"That's queer," said Johnny.

I excited the comb again and held it near the back of my hand, calling Johnny's attention to the fact that all the fine hairs stood up when the comb came near them.

"When you hold the comb near your cheek," I said, "the downy hairs stand up like that, and the feeling is just like that of a breath of air."

"Then it isn't wind that comes from the comb?"

"No; it is not wind."

"Maybe the comb is a magnet," suggested Johnny, seeing its attraction for

light hairs, dust and the like, as I held it over them. I took a small magnet from my table-drawer and held it near the feathers and hair. It did not stir them no matter how much I rubbed it. It picked up a needle, though, very quickly. Then I rubbed the comb, and though it attracted the feathers, it had no effect on the needle.

"Is that like a magnet?" I asked.

"No," said Johnny.

"When the needle springs to the magnet it sticks there; but when the hair or down springs to the comb it flies away again, instantly."

"It is very queer," said Johnny.

"Try this horn comb," said I.

Johnny tried it; but comb his hair as much as he might the horn would not draw anything. Then he tried a shell comb, and an ivory comb, neither of them acting as the rubber comb did.

"I don't understand it at all," said Johnny.

"Nobody does fully," said I; "but if you keep trying you may learn a good deal about it in time."

Then we went to breakfast. It was several days before the subject was brought up again. "I've been watching a long time," said Johnny that evening.

"I began to think it would never happen again, but it's first rate to-day."

"Have you found out anything new?" I asked.

"Not much," said Johnny. "I tried Humpty and the comb crackled like everything. What makes it do that?"

"I think we'll have to study that to-night," I replied. "Where's Humpty?"

"In the kitchen. Shall I call him?"

"If you please; bring pussy, too."

Johnny was soon back with Humpty and Nebuchadnezzar—that's pussy. We call him Neb, for short. Then we went into the library and put out the lights.

"How can we see what the comb does?" Johnny asked.

"Some things can be seen in the dark." I replied. Then I drew the comb brisk-



ly through Johnny's hair, making it snap and sparkle beautifully. "See," I said, bringing the teeth of the comb opposite my knuckle, "this is what makes the snapping."

"How pretty," Johnny cried, as the tiny sparks flew from the comb to my knuckle. "What is it?"

"Lightening," said I.

"Lightening! In my hair?"

"Certainly," I said. Let me comb out some more."

John was almost afraid of himself when I brought another lot of sparks from his head.

"Folks had better look out when I'm around," said the little fellow pompously. "Mary says I make more noise than a thunder-storm sometimes; I guess it's the lightening in me. Somebody'll get hit yet."

"Not very severely, let us hope," said I laughing. "Suppose we try Humpty, Maybe he's a lightening-bug too."

Sure enough, when we passed the comb through his shaggy coat the sparks flew finely. So they did when we rubbed him with the hand.

"Let's try Neb," said Johnny; "here he is under the sofa; I can see his eyes."

But Neb had no notion of being rubbed the wrong way. As soon as the sparks began to show, his patience gave out, and he went off with a rush.

"I guess Neb's lightening goes to his eyes and his claws," said Johnny.

After that we tried the sheepskin rug. Mary's muff and several other things of the sort, getting sparks from all of them.

"Everything seems to have lightening in it," said Johnny.

"Appaiently," said I, "but you can't make it show in everything alike; any way, not by rubbing. Try the chair back the table, the sofa and such things. Generally when two things are rubbed together the lightening—or *electricity*, as it is commonly called—escapes quickly. When it can't do that it accumulates—as it does in the rubber comb—and goes off

with a snap when it gets a chance. When a cloud contains more electricity than it can hold some of it jumps to other clouds or to the earth, making a flash of lightening. The thunder is its prodigious snap and the echoes of it. Are your slippers quite dry?"

"I think so," said Johnny, wondering what that had to do with lightening.

"I think the furnace has been on long enough to make the carpet quite dry, too," I said, turning just a glimmer of light on. "If it is you can make a little thunder-storm of yourself easily."

"How?" Johnny asked eagerly.

"Just skip around the room a few times without taking your feet from the carpet."

Johnny spun round like a water-beetle for a minute or two; then I stopped him and told him to reach out his fore-finger.

When he did so I reached my fore-finger to his and, as the points came together *snap!* went a spark between them, whereat Johnny cried "Oh!" and put his finger to his mouth.

"Did it burn you?"

"No," said Johnny, "but it scared me."

He was not so badly scared, however, but he wanted to try it again and again, while I turned up the light and went on with my reading. By and by Humpty came out from under the sofa to see what was going on, and Johnny sent a spark into his nose. It didn't hurt him any, though it surprised him not a little.

"Wouldn't it be fun," said Johnny, "to give Mary a shock?"

"Charge yourself again," I said, then come to me with your hands down."

Johnny did as I bade him, whereupon I stooped and kissed him on the mouth. It was his turn to be surprised that time.

Just then Mary came to tell the young lightening catcher that it was time to go to bed.

"All right," said the little rogue, cheerily, skipping about the room. "Kiss me good-night, Mary, but don't touch me with your hands," he said, at last, de-

morely holding up his mischievous mouth.

Mary gave the kiss, and got in return what she didn't expect.

"You little rascal," she cried, "you've got a pin in your mouth."

"No I haven't," he said.

"It's a piece of rubber, then."

"No, it isn't rubber."

"What was it?"

"Lightening," said Jonny. "See!" and he skipped a few times across the floor, then gave her a spark from his finger. Then he ran off to bed, laughing at Mary's bewilderment.—*Christian Union*.

### The Drift.

By E. L. R.

Geology tells us that in former ages a mild climate prevailed over the whole of the American continent, even to the Arctic Sea; that plants and animals then existed far to the north that could only have lived in a marm or tropical climate. A great change came suddenly upon them and their remains are now found deeply imbedded in the earth. The land that had smiled and bloomed beneath a tropical heat, was smitten by winter's cold and changed to the silence of desolation.

The warmth of this ancient past

Was stricken by an icy blast

All living things, both small and great

Together met a frozen fate.

The glaciers then began to form,

Through centuries of snow and storm,

And moving slowly on their way

Changed mighty rocks to sand and clay.

Then came what is known as the Glacial Period which was to change the whole surface of the land over which it reached. Many theories have been advanced relating to the cause of this change from a tropical to an arctic climate but it has not yet been very positively explained. The glacier has left its marks plainly graven upon the surface of the rocks, over which it carried the clay, sand, gravel, etc., that we call "the drift."

Agassiz has said, "The glacier was God's great plow" with which the hard rocks were ground to a powder and mixed together, thus preparing a soil fit for the agricultural use of man.

No better field for the study of the American drift can be found than Indiana. The greater part of her rocks, over three-fourths, are covered by the clay, sand, gravel and boulders, to the depth of a few inches in the southern part of the state, to over 200 feet in the northern part. In the northern part of the state the depth, as shown by various wells which have been sunk into the underlying rock, varies from 92 to 212 feet.

### An Addition to the List of Birds of Monroe County, Indiana.

In looking over the list of Monroe County, Indiana, Birds, as published in the May HOOSIER NATURALIST, I notice with regret that I failed to mention the evening grosbeak (*Hesperiphona vespertina*) as a bird of that county. On Saturday, January 22, 1887, a fine male was seen and shot by Mr. Chas. H. Ballman in the University Campus. Up to date this is the only specimen of the species ever seen in the county since the appearance of my note on this species in the *American Naturalist* for March, 1887. I have been informed by Prof. Charles R. Barnes, of Purdue University, that there is in the museum of that institution "a fine male *Hesperiphona vespertina* shot here [near LaFayette, Ind.] in November, 1878." This, then, appears to be the first for the state of which we have any record. For the other records see *American Naturalist* for March, 1887.

Prof. Barnes also reports two snowy owls as having been shot last December on the Wea Prairie, 6 miles south west of LaFayette.

B. W. Evermann.

Terre Haute, Ind.

## A Voice from Florida.

## EDITOR HOOSIER NATURALIST:

The June number of your valuable paper has just been received. Looking it over I miss "Correspondence and Taxidermy." Why was it omitted? Do the young Naturalists fail to furnish you with copy? I fear this is so. Instead of the interest in "Correspondence" dying out I hoped it would constantly increase. Why do not all the young Naturalists write about their experiences while collecting and about the specimens they have taken during the summer? I shall write about mine and hope to see others follow.

Bonifacio is a little town situated on Boca Ceiga Bay, at the southern extremity of Puellos Peninsula, which separates Tampa Bay from the Gulf of Mexico. The peninsula is composed of high and low land, lakes, marshes, creeks, hammocks, etc., etc., while along the coast, runs a narrow chain of keys which abound with sea birds. So I have a pretty good place to hunt specimens. Some time ago I found a little pond full of young alligators. A few days afterwards a friend and myself went down to catch some of them. Fastening three hooks together we tied them on a short rod and when the little alligators rose to the surface we slipped the hooks under their bodies and suddenly jerking, the poor little alligator was swinging in the air and was soon placed in a box provided for the purpose. We caught 4 and went home. June 20, my brother and I went on a trip down the coast in his sharp-rigged boat, "Anna," to hunt bird's eggs and sea curiosities. Saw a large colony of roseate spoonbills on a little key. Shot at one but did not get it. June 21. Stopped on a small island called Passage key. Found several sets of laughing gull eggs and some fine coral. Saw numbers of gulls, terns, shearwaters and willets; also a few snipe and in some low trees we saw about 200 Louisiana herons' nests and a few

young herons. Stopped for the night at Long Boat Inlet. June 22. Ran all day. Anchored at night on a large oyster reef and had fine oysters for supper. Saw a large colony of great white herons in a little key not far off. June 24. Ran down to turtle key and anchored. Walking along the beach I found 4 turtles' crawls and got 110 eggs from one, 140 from another, 140 in the third, and 100 in the last. Also found a fine lot of skates' eggs, sea urchins, coqueunce rock, pipe coral, and a few fine shells. At night we went down the beach to hunt turtles. We carried a lantern and soon spied a turtle depositing its eggs. We turn it over on its back and left until the next morning. On our way back we found another turtle and turned him also. We got 123 eggs from one and 96 from the other. June 25. Loaded turtles on boat and started home. Reached Tampa bay at night, 20 miles from Turtle key. June 26. Stopped on Passage key and got 7 royal terns' eggs and 2 laughing gull's eggs; also some coral. Met Joseph H. Batty, of New York, hunting birds. Arrived home at 1 P. M. On the 4th of last June I went to bird rookery, which is about  $1\frac{1}{2}$  miles from Bonifacio, and obtained 22 sets of brown pelican eggs and 2 sets of Florida cormorants' and 12 single eggs. June 14. I went again and got 14 sets and 7 single eggs of the Louisiana heron. While walking in the woods I was fortunate enough to find a set of night hawks. Date of collecting. May 20, '87. May 29 I was lucky in finding a set of chuck wills widow eggs, which are worth \$3 per set. The number of eggs I have taken altogether are as follows:

Brown pelican: 12 sets of 3, 1 set of 2 and 7 single eggs. Florida cormorants: 3 sets of 2, and 12 single eggs. Louisiana heron: 8 sets of 2, 4 sets of 3, and 7 single eggs. Royal tern, 7 single eggs. Laughing gull: 3 sets of 2, and 15 single eggs. Night hawk: 1 set of two and 2 single eggs. Chuck wills widow, 1 set of 2. I also collected 2 sets of the great

blue heron's eggs. A good season's work I think. Have also found some fine shells, sea-beans, starfish, and other sea curiosities. I am just starting a collection of insects and am also practicing taxidermy and have several specimens ruined by croton bugs. Does any one know a remedy for them? Considering that I have had to work most of the summer and that all the specimens named above are first class, I think I have done very well. Do you not think so? Let us hear from some one else. Ever a friend of the HOOSIER NATURALIST and a lover of nature, I remain, Yours, CHAS. S. MCPHERSON.  
Bonifacio, Fla., July 25, 1887.

### Cuckoo and Snake.

On the evening of the fourth of this month, while passing along the road, my attention was attracted by the sound of a bird vigorously fluttering in the midst of a dense tangle of wild grape vines which ran over the tops of the undergrowth near by. On pushing my way into the thicket I found a yellow-billed cuckoo in the clutches of a large black snake. The bird had a nest in the vine, in the top of a dogwood, where she had evidently been sitting when seized by the snake. The reptile was lying partly on the nest and partly on the grape-vine with its body coiled tightly around that of the bird, while every now and then it gave the helpless victim a savage snap with its jaws. To get a better view of the snake's movements I shinned up a sapling that stood near by and seated myself in a crotch on a level with him. When the bird had entirely ceased fluttering the snake seized its head in his jaws and began slowly. When he had gotten outside of about half of the bird, I spoiled his meal by breaking his back with a limb cut from the sapling. The cuckoo's nest contained two eggs and one young bird, none of which

had been injured. The snake measured four feet five inches in length. These snakes in climbing trees do not wind around the trunk, as many seem to suppose, but always go zig zagging up one side holding on the bark with their scales, taking advantage of any knot or projection by running their bodies over it.

JOHN B. LEWIS.

### A Ruby Throat's Nest.

On the 14th of last July it was the writer's good fortune to discover a nest of the ruby throated humming bird. It was situated on top of a white oak limb about 30 feet from the ground and seven or eight from the trunk of the tree. The limb is one inch in diameter where the nest rests on it and has a dead twig  $\frac{1}{2}$  inch in diameter projecting from the side under the nest. The nest is composed of plant down, of a dirty white color and very soft. This delicate frame work is covered on the outside by fine bits of gray lichens exactly corresponding in color to those on the limb on which it rests. This covering is held in place by a net work of spider web so thickly and evenly wound about and over the pieces as to make it impossible to get the point of a pencil between them. The nest is 1.5-8 inches high and  $1\frac{1}{4}$  inches in diameter at the top, and is circular. The nest contained 2 eggs of a delicate clouded white color, almost transparent. The bird never alighted on the edge of the nest, to my knowledge, always hovering over it a moment and then suddenly dropping into it, where all that could be seen of her from below was the end of her long bill projecting over the side.

Eubanks, Ky., June 8, 1885.

All parties receiving this number of THE HOOSIER NATURALIST are requested to read what we have to say on page 169. These offers are so very liberal we shall expect you to accept one of them at once.

### The Wanton Destruction of the Florida Heronries.

Cannot general legislation, cannot state legislation, or cannot somebody raise a hand to stay the terrible, the shameless extermination of the herons at their breeding grounds in the south-western parts of the State of Florida?

As I pen these lines this murderous work is being actively carried on, and apparently in the most lawless and reckless manner possible,—a disgrace to the entire country,—for one of America's grandest and most interesting natural features, her heronries, are simply, and without a check of any kind, being ruthlessly wiped out of existence. Prompted by an insatiable greed for gain, the 'plume-traders' of the markets are upon their grounds in numbers, and hundreds of these birds are now daily falling to their unceasing fire, simply that they may have their backs robbed of a few feathers to gratify a passing fashion. *The Auk* is now publishing an admirable series of articles on this subject from the able pen of Mr. W. E. D. Scott, at present on a scientific expedition in Florida, and I have just read his contribution to the July number of that journal. Mr. Scott has very recently made camp at a number of these heronries, and I quote a few of his words in order to show what work is going on there. At Matlacha Pass, near Charlotte Harbor, Pine Island is a heronry, and here one Johnson was at work. "A few herons were to be seen from time to time flying to the island, and presently I took the small boat, and went ashore to reconnoitre. This had evidently been only a short time before a large rookery. The trees were full of nests, some of which still contained eggs, and hundreds of broken eggs strewn the ground everywhere. Fish-crows and both kinds of buzzards were present in great numbers, and were rapidly destroying the remaining eggs. I found a huge pile of dead, half-decayed birds, lying on the ground,

which had apparently been killed but a day or two. All of them had the 'plumes' taken, with a patch of skin from the back, and some had the wings cut off, otherwise they were uninjured. I counted over two hundred birds treated in this way." In some places Mr. Scott found hundreds of the young herons just starving in their nests; in others, the gunners beneath the trees shooting down the magnificent birds in hundreds, stripping their backs, and leaving their carcasses to rot upon the ground. Instances were noted without number, where, during the breeding season, the poor affrighted survivors were driven to strange islands, dropping their egg in quantities from the trees where they fearfully roosted for the night. A few more years, one or two at the most, and this disgraceful murder will cease, for the simple reason that there will be no more victims for the murderers to prey upon,—and in the name of nature, and in the name of the shadows of the sweet old romances that have come down to us of the heronries of history, are these timid, and most engaging of all our larger water-fowl, our own American herons, to be destroyed in this manner!

Twenty years ago southern Florida was the sight of the grandest heronries in all the world, and to-day this State is making enviable progress, and many cultured people are flocking to her for a permanent home; is she to stand idly by and watch what will surely be one of her greatest natural attractions stamped out in a few months under her very eyes.—a work, that, when fully known, as it will surely be, will pass down as one of the blackest pages in her history? A quarter of a century ago the writer was at Charlotte Harbor himself, and well do I remember my unbounded enthusiasm as my eyes first feasted upon the sight of a Floridian heronry; many, many species, represented by thousands upon thousands of individuals, were ranged along the beaches, or covered the cypress tops,

where their nests were in hundreds. Never shall I forget their lovely uniforms as they glistened in the soft atmosphere of that sub-tropical land; some were snowy white, others a charming blue or warm chestnut, while, more beautiful than all, the wondrous rosy tints of the spoonbills fairly shone in the bright sunlight.

Really I am sad as I see, only too vividly in my mind, the disgusting slaughter that is now being perpetrated in their very midst. Entire rookeries have been exterminated, and others reduced to a few, very few, pairs of birds, now so wild and suspicious that it requires the skill of the rifleman to capture them.—  
R. W. SHUFELDT in *Science*.

#### Dates of Arrivals of Birds in DeKalb Co., North eastern Indiana.

The following notes are accurate, as the observer has spent much time and taken great pains in preparing them. The first date is the day when the bird was first noticed; the second date, when next observed:

Common Crow, February 5, 9, 14, 16.

(A few crows probably remain all winter)

Blue bird, Feb. 16, 25.

Robin, Feb. 14, 15, 16.

Song Sparrow, Feb. 16, Mch. 1, 4.

Meadow Lark, Mch. 1, 3.

Red and buff shouldered Blackbird, Feb. 26, Mch. 2.

Bronzed Grackles, Mch. 4, 5.

Killdeer, Mch. 7, 8.

Chipping Sparrow, Mch. 7, 11.

Chewink, Mch. 15, 17.

Cardinal Grosbeak, Mch. 12, 19.

Pewee, Mch. 11, 17.

Mourning dove, Mch. 8, 9.

Wild Geese (flocks), Mch. 7.

Cedar Waxwing, Mch. 19.

American Woodcock, Mch. 22.

Great Blue Heron, Mch. 23, Apr. 22.

Wood Pewee, Mch. 25, Apr. 4.

Belted King-fisher, Apr. 3.

Brown Thrasher, Apr. 14, 15.

Tree Swallow, Apr. 19, 20.

Barn Swallow, Apr. 23, 24.

Cliff Swallow, Apr. 30.

House Wren, Apr. 30, May 1.

Baltimore Oriole, Apr. 30, May 1.

Cow Bird, Apr. 14, 30.

Catbird, Apr. 30, May 2.

Red-headed Woodpecker, May 1, 2.

Chimney Swift, May 2, 3.

King Bird, May 3, 5.

Rose-breasted Grosbeak, May 7.

Scarlet Tanager, May 7.

Sparrow Hawk, May 7.

Bobolink, May, 3, 7.

Orchard Oriole, May 4, 7.

Indigo Bunting, May 8.

American Redstart, May 8.

Bank Swallow, May 8.

Ruby-throated Humming bird, May 9.

Night-hawk, May 15, 16.

Yellow-billed Cuckoo, May 14, 15.

Spotted Sandpiper, Apr. 30.

JOHN O. SNYDER,

Waterloo, Ind.

#### Niagara Excursion.

Bell's annual excursion train will leave Valparaiso, Ind., August 15. at 10 A. M., for the Niagara Falls, on N. Y. C. & St. L. R. R. The round trip will be but \$7.50. Good refreshments will be served at reasonable prices, on board the cars. It will not, therefore, be necessary to carry lunch. We should be pleased to meet any of our H. N. readers who can avail themselves of this cheap rate to visit the falls.

We shall be pleased to give all information necessary. Address with a stamp.

R. B. TROUSLOT, Valparaiso, Ind.

#### A Strange Place for a Bird's Nest.

The men working at gas well No. 2 at this place, found a blue bird's nest with two eggs in it, in the pump they had been using for clearing out the well. This pump had not been used for a week or so on account of the loss of the drill.

W. F. WEST, Greensburg, Ind.

# The Hoosier Naturalist.

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VALPARAISO, IND., JULY, 1887.

## Editor's Card.

With this issue THE HOOSIER NATURALIST completes its second volume. The long voyage just terminated, has been to us, in many respects, a very enjoyable one indeed.

We have formed the acquaintance of scores of young people naturalistically inclined; have been generously assisted in a literary way by many able naturalists; financially have lost nothing.

We are equally grateful to those who helped to make THE HOOSIER NATURALIST readable and to all who, considering it so, sent in their subscription.

THE HOOSIER NATURALIST is not discontinued from lack of interest on our part—far from it. Young men, every where, are seeking to better themselves by going West. Such have been our desires for a long time, so, when C. R. Orcutt, of San Diego, Cal., publisher of the *West American Scientist*, proposed, some months ago, to purchase THE HOOSIER NATURALIST, we considered his communication favorably and consented to transfer our entire right and good will of

the aforesaid magazine to him, at the close of Vol. II.

We have always desired to give value received. With this end in view unexpired subscriptions will be filled by a larger, more ably conducted and consequently better magazine—the *West American Scientist*, the regular subscription price of which is one dollar per annum.

To induce all the old subscribers of THE HOOSIER NATURALIST to renew with the W. A. S. at once, by special arrangement, we are enabled to offer this excellent natural history magazine to them at the extremely low figure of fifty cents per year. This offer, to be good, must positively be accepted before Sept. 1.

In the *West American Scientist* a series of descriptive articles on Southern California, are now running. The illustrations are full page and veritable gems of the art photographic.

Its corps of contributors are numbered among the eminent naturalists of America. To these will be added many of those who so generously assisted us. W. R. Lighton will continue his Geological Department, which we consider a valuable and interesting feature. We will also undertake an Ornithological and Oological Department and trust that the subscribers of both papers will assist us in making it a success. We still have about thirty copies of Mr. Davis' New Egg Check List of North American Birds, and to hasten their sale will mail free the *West American Scientist* for one year to all purchasers before Sept. 1. Hence 30 people can get two dollars for one. Should any remit after the books are all sold the money will be promptly returned. Notwithstanding the sale of our H. N., the firm of R. B. Trouslet & Co. will continue to do business at its old stand, No. 39, Col. Ave., and will always be happy to accommodate all customers and they beg to assure you that whatever orders you may entrust to them will receive their prompt and careful attention.

Very truly, R. B. TROUSLOT

PROFESSORS B. W. EVERMAN and O. P. Jenkins are collecting at Guaymas, Mexico. They expect to return in August. If the weather is as warm proportionately with them, as we found it at St. Louis, a few days ago, they are to be pitied.

PARASITIC Plants, which appeared in the June issue of this magazine was written by G. E. Briggs, of Peekskill, N. Y. Through an oversight on the part of the publishers, no credit was given.

WE are recently informed that an Academy of Science has been organized at Leavenworth, Kansas, with W. R. Lighton as secretary. Leavenworth takes unusual interest in scientific matters and it is with pleasure we chronicle this step in the right direction. The indications are, that our Indiana Academy will have a healthy rival.

### Mongolian Pheasants.

I take a great interest in ornithology and could send you some interesting accounts of the birds of this state. We have ruffed grouse and plumed quail in the coast mountains. Mongolian pheasants were introduced in this state about seven years ago, from China, by our consul, O. N. Denny. They are becoming numerous in parts of the Willamette Valley and seem to flourish here as well as they do in their native *habitat*. Of severe winters they sometimes come into our barn yards and, with their long tails and bright plumage, look quite handsome.

Yours truly,

H. C. Perkins.

LEWELLYN, Lane Co., Or., July 10, '87.

### A Gungry White Pelican.

I have just received from Huron, Dakota, a very large live White Pelican. He has a fine crest and did have a large "horn" on his upper mandible, but it was broken

off on the trip here.

He shows no fear, and his eyes have a mild and pleasant expression (they are bluish gray in color) he appears quiet contented, but the amount of fish and meat he can dispose of seems likely to breed a famine. The boys brought in a large dog-fish the other day, it was over a foot long and so heavy that he could not hold it up to swallow it, but I put it into his mouth and held his head up and it disappeared from sight.

I also have a fine live Snow Owl, which was captured near here, Apr. 15. Pretty late in the season was it not? Two more were killed near the same place last winter.

Yours truly, E. L. Brown, Durand, Wis.

## EXCHANGES.

First class California birds' eggs, in sets or single, to exchange for birds' eggs or reliable oological and ornithological books or papers.

C. E. Crosby, Riverside, Cal.

10 var of side blown correctly identified eggs for 25 cts.

To the first five persons ordering, I will send an egg catalogued at 25 cts. or more. To the next 5, one catalogued at 15 cts. or more.

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I will send most any No. of "Youths Companion" "Golden Days" or "Young America", for every spec'l del'v stamp, dime prior 1860, or two half dimes, or 3 three cent peices sent me, any date.

R. T. James. Vernon Hill, Va.

### New Key to North American Birds.

By Elliot Coues contains the same subject matter as before, with the addition of the nomenclature of the American Ornithologists' Union, in the most convenient form for comparison with that of former editions. Illustrated with 500 wood engravings. One vol., royal octavo, vellum cloth, price reduced to \$7.50. Orders filled by R. B. Trouslet & Co.



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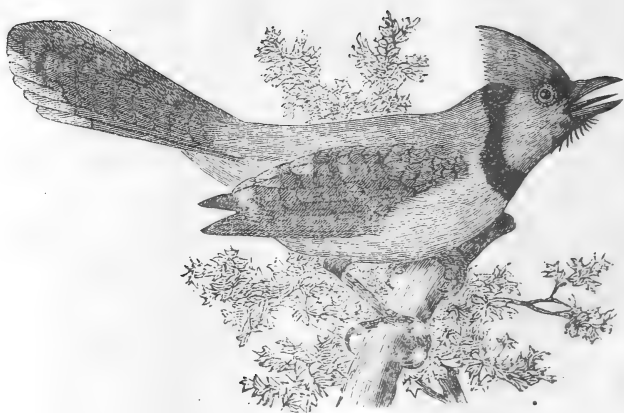
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# The Southern Naturalist.

VALPARAISO, INDIANA, MARCH, 1888.

NO. 2

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For FOREIGN EGGS see our advertisement in the March issue of the Southern Naturalist. The eggs are of various kinds, and are of great value to collectors.

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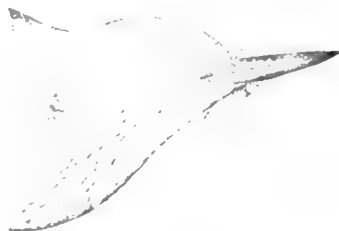
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## White-breasted Nuthatch.

*Sitta carolinensis.*



Here, in Northern Illinois, one might say that every grove has its pair of Nuthatches, so uniformly are they distributed.

We were camping in a pleasant grove in Kane county, one June, and having just finished skinning a number of fresh birds, sat cogitating on the probable capture of the morrow, when our reverie was interrupted by a member of the Nuthatch family none other than Mrs. *S. carolinensis*. She hopped first on one branch, then over our heads, and then on the other, until, getting bolder, she descended to the extended table in front of us.

How breathlessly quiet we sat; how handsome Mrs. Nuthatch looked; how bright and intelligent were her eyes, as she turned first one and then the other, inquiringly on us, and then, of a sudden, without so much as asking "by your leave sir," she just helped herself to a chunk of cotton that was lying temptingly near, and away she flew.

Frank raised his gun to fire, but I restrained him and we watched the bird fly to a neighboring decayed tree and disappear.

Directly, she appeared again, this time accompanied by Mr. Nuthatch, to whom she was evidently detailing her exploit, in regular feminine politeness, while he sat quietly by a perfectly listless Mr. N— was of very bold, he could not be induced to approach nearer than a rod or two, and then always with a tree between us, around which he would inquiringly peep probably thinking to himself "how nicely Mrs. N— and I are going to get some more cotton with which to line our new home."

Well, after Mrs. N— found that she couldn't get her husband to help her, she proceeded as before, and carried off another piece, in spite of exclamations of joy from her better half.

They might have continued this kind of business for some time, had not our stomachs admonished us that dinner was eaten at eleven, and knowing that supper must be prepared before it could be partaken of we set to work.

Thus no doubt upset the calculations of Mr. N—, who seemed to resent it in a manner peculiarly his own.

Nuthatches are usually rather shy

about the mostesting places, but this pair was an exception.

Several days later we returned, and on examining the nest, which we had previously located, but which now for the first time, we found it to contain no eggs.

We waited patiently for another week, and then, on examining the nest, had our patience, or rather impatience, rewarded by finding six cosy, reddish-brown spotted eggs. Incubation scarcely begun.

We took the eggs, with a good scolding from both Mr. and Mrs. Nuthatch. We left them the cotton, however, but presume they found that poor consolation.

The eggs were beautiful specimens and averaged .76x.57.

The nest was about ten feet up in a decayed oak and besides the cotton, was also lined with leaves and horse hair.

## Shrike and Sparrows.

In our neighborhood, Sparrows are very numerous. January 14th, I was shooting them from the top of our house, when a shrike fly among them, and suddenly dropped about five feet with a sparrow and lit quite close to me. I raised my rifle, which was loaded with shot, and killed the Shrike. The Sparrow was nearly naked.

On the 1st of May, '87, I found a Shrike's nest, about twenty feet from the ground, in the top of an oak tree. The nest was entirely surrounded and covered with vines. It was composed of string, pieces of wood, rootlets, fibres, etc., and was lined with feathers, which made it soft and white. The nest contained six eggs, with a grayish ground color and blotched with brown.

M. TINKLE, Milwaukee.

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THE HOOSIER NATURALIST.  
 HOOSIER NEWS COLUMN FREE, WITH  
 NO COPIATION.

Devoted to Ornithology, Oology,  
 Taxidermy, etc.

NO ADVERTISING RATES.

ADVERTISING RATES: 2c per line; \$2.  
 per month for five lines, \$16 per col. of ten  
 lines, \$18 per page of three columns.

For "Spare" and "Taken" columns  
 no charge for the copy.

### 

This is made 10,000 perfect copies.

Next for next issue must be in by April 5.

Printed at this P.O. as second class matter.

### 

When we mailed the 2000 copies of Jan.  
 issue, we did not anticipate such an exten-  
 sive correspondence coming pouring in  
 upon it. *The Hoosier Naturalist* and other  
 work so completely occupies our time that  
 we are compelled to arrange with Messrs.  
 Trouslet & Co. to continue publication, at  
 least for one year. The proprietorship  
 remains with this issue and I was in-  
 formed that the interests of *The Hoosier*  
*NATURALIST* will be cared for as ac-  
 cidentally as its first two volumes were  
 under their able management. Messrs.  
 Trouslet & Co. have, for nearly fifteen

years, devoted their prime moments to  
 the study and collecting of Natural His-  
 tory specimens, and they have added  
 to their collection of the great Northern  
 Indiana Society, and of the Indiana In-  
 stitute of this city. Since that time they  
 have continued to collect, all of which, I  
 taxidermy, and published this paper, now  
 in its third volume. Last November, Mr.  
 R. B. Trouslet sold some Michigan real  
 estate to an Eastern party, for nearly  
 \$400, of specimens, mostly Oological.  
 The *Hoosier* had all duplicates, which will  
 be found in another column and which  
 they offer at fifty cents on the dollar.  
 These, and probably are excellent oppor-  
 tunity for all desiring this class of speci-  
 mens, to obtain them at extremely low  
 cost. Respectfully,

Charles E. Linn.

Addressing *The Hoosier NATURALIST*  
 care of the collector Vol. II, No. 1, R. O. Orr,  
 1st National Bldg., 100 N. Second St.,  
 Indianapolis, Ind. We are not desirous of  
 receiving the paper, but to follow a "Good  
 Bye" notice. Go west, and grow up with  
 the country. An Alluvial Providence  
 is all that is needed, and is still here.  
 Have you purchased the large collection  
 of Mr. Linn? We have prevailed  
 upon him to permit, with Mr. Orcutt, to  
 place in *The Hoosier* a Vol. III promise  
 to publish all of the interesting patronage.  
 He will be on for the transfer and  
 will be on the point of transfer, it is  
 expected. It is anticipated that we  
 will be the only published subscription  
 list. Personally we will be guided by a  
 person of considerable experience in  
 this line, but whose modesty precludes his  
 appearing otherwise than under the nom-  
 de plume of B. Martin. Like the King-  
 bird, our editor will ever be on the alert  
 for students in attendance this term.  
 Catalogue free.

to procure the choicest oddities for his  
 numerous family of readers, and likewise  
 will be ever ready to do and the inter-  
 ests of the *Hoosier* will for all  
 and in all. Now, as not, we have se-  
 cured the best possible rates from vari-  
 ous Natural History publishers, by sub-  
 scribing, with few exceptions, for one  
 hundred copies of each. The reductions  
 thus obtained, we give to our customers.  
 Our object is to place the *Hoosier*, if possible,  
 wherever anyone can be found inter-  
 ested in any subject treated of in our col-  
 umns or by our corresponders.

We wish to dispose of our duplicates  
 quickly, and have cut former prices ex-  
 travagantly. Being that every offer  
 made in this issue is a rare bargain, in  
 fact, fat bait, and eliciting a bite from  
 each reader, we beg to remind,

Very truly yours,

R. B. Trouslet & Co.

We propose to give more for the money  
 and better specimens, than any other  
 dealers in the world.

*THE HOOSIER NATURALIST* will im-  
 prove and enlarge as fast as its subscrip-  
 tion list and MS. at hand will permit.

We will mail this paper free, for the  
 remainder of this year, to all persons send-  
 ing 25c for goods or specimens and the  
 names and addresses of five bona fide col-  
 lectors.

Should this sheet be of no benefit to  
 you, oblige us by handing it to some one  
 interested in Natural History.

Be sure and read our liberal offers on  
 next page. No. 7 is just the outfit every  
 collector needs, be he old or young, and, if  
 you don't, we will be glad to get it.  
 These prices are now duplicated by any  
 one, and will probably be withdrawn by  
 us on March 1st. Only a better than.

### 

January 10, we received an albino rabbit,  
 from Central Minnesota, considerably  
 larger than the common species.

English sparrows are excessively  
 abundant in and around Valparaiso.  
 Indiana should do as some other states  
 have already done—give bounty.

So far this winter several White Owls  
 have been seen in this neighborhood, only  
 one of which was shot. It now helps to  
 form a display in one of our show win-  
 dows.

Geo. L. Fernier, of the U. S. Naval  
 Academy, at Annapolis, Md., has our  
 thanks for two pieces of light and heavy  
 cloth, made of wood, done by the natives  
 of the South Sea Islands.

Mr. H. Dille, living three miles south  
 of Valparaiso, while out hunting, Friday,  
 January 20, shot a fine specimen of Jack  
 Rabbit, weighing 6 lbs. It hung for  
 several hours in front of Vanness' gro-  
 cery, attracting considerable attention.  
 The specimen was undoubtedly brought  
 to these parts and either escaped confinement  
 or was purposely liberated.

Efforts are being made to establish a  
 large museum and natural history estab-  
 lishment at San Diego. A conceit, we  
 should judge, similar to the Ward  
 establishment at Rochester. Messrs. Orcutt  
 and Lighton, backed by a corporation  
 worth several millions of dollars, will un-  
 doubtedly succeed above their most san-  
 guine expectations. We will be better  
 able to speak of the magnitude of the un-  
 dertaking in our next issue.

W. R. Lighton, secretary of the Kansas  
 Academy of Science and associate editor  
 of the *West American Scientist*, who  
 conducted for a long time, the Economic  
 Geological department in the *Hoosier*,  
*NATURALIST*, writes from San Diego,  
 Cal., under date of Jan. 11: "I have just  
 removed to San Diego, from Tucson,  
 worth to assume the management of the  
*West American Scientist* for Brother  
 Orcutt, and am determined to remain a  
 San Diegan forever, for words are pow-  
 erless to express my satisfaction with  
 the country and climate. I left Kansas  
 on Dec. 21st, with the thermometer 20  
 below zero, and emerged with the at-  
 mosphere of this coast a week later, feel-  
 ing my overcoat and winter clothing un-  
 bearably warm!! The sea air and the  
 fruits and the country in its entirety, in-  
 deed, is most invigorating, and I find my  
 heart filled with infinite pity for the  
 poor dejected mortals who cling to the  
 interior, content to have the marrow  
 frozen in their bones because, as was the  
 case with me only a few weeks ago, they  
 don't know what a country this is." We  
 congratulate Mr. Orcutt in securing so  
 able a gentleman to conduct his *West*  
*American Scientist*, and in consequence,  
 predict for it an early and healthy boom.

C. C. Trowbridge, a young son of  
 the scientist, W. P. Trowbridge, while  
 hunting, shot a sooty hawk. On pick-  
 ing up the dead bird he noticed, in the  
 words of his father, in *Science* for Jan.  
 6, "that the four outer primaries of each  
 wing were interlocked; that part of each  
 primary along which the lower margin  
 was cut away lapped over or behind the  
 succeeding primary which was cut away  
 its anterior or upper margin, to permit  
 of the interlocking and crossing of these  
 feathers," which was the condition of the  
 wings when he picked up the bird. The  
 young man thought that this interlock-  
 ing had the effect of relieving the mus-  
 cular action required for the extension of  
 the primaries during long flight, espe-  
 cially in soaring birds, and, further, that  
 it might aid the bird in steering while  
 soaring. The young man's idea is sus-  
 tained, not only by his father, but by  
 Messrs. Newberry and Wyman, both em-  
 inent scientists. Dr. Coates, however,  
 differs with the above gentleman, and by  
 his positive assertions to the contrary  
 has succeeded in arousing considerable  
 feeling. We are favorably impressed  
 with young Trowbridge's ideas, and  
 offer the following for what it is worth:  
 When hunting on Fox river, some twenty  
 miles from Valparaiso, Ill., the fall of 1875,  
 we discovered an Osprey (*P. haliaetus*  
*americanus*), perched on the topmost boughs  
 of a lofty tree, and although our shells  
 were charged with but an ounce of No.  
 10, we skulked to the base of the oak and  
 risked a shot. The bird rose in the air  
 with a shrill cry of pain or alarm, and,  
 wheeling about, sailed down the river.  
 Thinking it wounded, we followed on a  
 rapid run, and soon had the satisfaction  
 of seeing it rapidly descend towards the  
 river, into which it splashed. When the  
 bird was brought in, (we waded out for  
 it) the wings were still "set" as though  
 in the act of soaring. The discussion in  
*Science* recalled the incident, although  
 nothing special was thought of it at the  
 time.

Box—"Mother, what are fish covered  
 with?" Mother—"Scales, my son."  
 B.—"Are they hay scales?"



# EGGS AT HALF PRICE.

The following eggs will be shipped, postpaid, at half the rates quoted. No order filled for less than 25 cents net. The H. N. sent free for one year with every order amounting to \$1.00

NAME	A. O. U. PRICE.
1 Wood Thrush	755 .12
2 Olive backed do	759a .64
7 American Robin	761 .05
11 Mockingbird	763 .12
12 Catbird	764 .03 1/2
13 Brown Thrasher	765 .04 1/2
22 Blue Bird	766 .03 1/2
47 Least Tit	743 .35
56 Cactus Wren	713 .30
57 Saint Lucas Cactus do	714 .30
60 Carolina do	718 .30
63 House do	721 .07
63a Western House do	721a .18
67 Long-billed Marsh do	725 .06
[72] European Titlark	[698] .30
88 Blue Yellow backed Warbler	648 .35
115 Golden-crowned Thrush	874 .24
117 Large billed Waterdo	676 1.28
123 Yellow-breast Chat	683 .12
135 Red eyed Vireo	624 .18
145 Bell's do	633 .30
149 Loggerhead Shrike	622 .30
149a White-rumped do	622a .24
152 Purple Martin	611 .30
153 Cliff Swallow	612 .06
154 Barn do	613 .06
157 Bank do	616 .06
161 Scarlet Tanager	608 .35
164 Summer Redbird	610 .35
170a Crimson House Finch	519a .09 1/2
181 American Goldfinch	529 .07
184 Lawrence's do	
189a Yellow-bellied Sapsucker	519a .10
197 Grass Finch	510 .07
198 Yellow-winged Sparrow	516 .24
198a West Yellow-winged do	516a .24
202 Sea-side Finch	550 .47
211 Chipping Sparrow	560 .03 1/2
211 Field do	563 .07
217 Black Snowbird	567 .41
241 Song Sparrow	581 .03 1/2
241a Heermann's Song do	581a .24
237 Towhee	587 .24
238 Oregon do	588b .87
240a Californian Brown do	591b .24
242 Cardinal Grosbeak	593 .12
244 Rose breasted Grosbeak	595 .24
246 Blue Grosbeak	597 .70
248 Indigo Bunting	598 .14
251 Painted do	601 .24
254 Black throated Bunting	604 .14
258 Cowbird	495 .06
258a Dwarf do	495a .50
260 Yellow-headed Blackb'd	497 .12
261 Red and buff should'd do	498 .03 1/2
261a Red and blk should'd do	499 .12
262 Red and white should'd do	500 .24
262a Orchard Oriole	506 .12
269 Parula's do	508 .24
274 Brewer's Blackbird	510 .14
275 Great-tailed Grackle	512 .70
277 Red tailed do	513 .24
284 Purple do	511 .09
287 Common Crow	511b .10
288 Common Crow	518 .24
286 Black billed Magpie	475 .58
290 Blue Jay	477 .07
300 Shore Lark	474 .35
301 Vireo-billed Flycatcher	443 .24
301 Kingbird; Bee Martin	444 .06
311 Great Crested Flycatcher	452 .18
415 Thrush	456 .06
414 Canadian Flycatcher	465 .35
325a Trail's do	466a .35
358 Texan Nighthawk	421 .87
361 Downy Woodpecker	394 .30
363 Texan Sapsucker	396 1.64

372 Red-bellied Woodpecker	409 .35
378 Yellow-shafted Flicker	412 .06
378 Red-shafted do	413 .18
387 Yellow-billed Cuckoo	387 .24
394 American Barn Owl	365 .76
395 American Long-eared do	366 .76
431 Cooper's Hawk	373 .35
436a Western Red-tail	377b 1.64
436b Red-bellied Hawk	377b 1.45
454 Turkey Buzzard	325 1.16
455 Black Vulture	326 1.16
460 Mourning Dove	315 .09
470a Wild Turkey	310 1.16
477 Prairie Hen	305 .24
480 Bob-white	289 .14
480a Florida Quail	289a .30
480b Texan do	289b .24
482 Californian Quail	294 .18
483 Gambel's Quail	295 .58
490 Snowy Heron	197 .24
492 Louisiana Heron	199 .24
493 Little Blue do	200 .24
494 Green do	201 .14
495 Black-crowned do	202 .18
496 White-crowned Night do	203 .58
505 Roseate Spoonbill	183 3.19
507 American Oystercatcher	286 .87
[512] Lapwing	[260] .30
516 Killdeer	273 .30
520 Piping Plover	277 .47
552 Willett	258 .47
569 Red-breasted Rail	208 .30
571 Clapper do	211 .18
572 Virginian do	212 .30
[573] Spotted Crane	[213] .58
574 Sora Rail	214 .18
578 Purple Gallinule	218 1.16
579 Florida do	219 .18
580 American Coot	221 .18
European do	[220] .24
585 American Flamingo	182 1.16
640 American W. Grebe	125 1.16
643 D. Grebe	125 1.16
643a Florida do	120a .35
645 Brandt's do	122 1.05
650 Gannet	117 .41
656 Black Skimmer	80 .30
663 Great Black-backed Gull	47 .93
663a American Herring do	51a .24
668 Californian do	53 .70
669 Ring-billed do	54 .93
673 Laughing do	58 .24
679 Gull-billed Tern	63 .30
685 Forster's do	69 .30
686 Common do	70 .12
687 Arctic do	71 .18
688 Roseate do	72 .21
690 Least do	74 .14
723 Leach's Petrel	106 .30
735 Thick-billed Grebe	6 .18
742 Razor-billed Auk	32 .41
743 Common Puffin	13 .41
760 Black Gull-mot	27 .30
763 Common do	30 .30
763a Californian do	30a .41

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## Books Received.

THE BUTTERFLIES OF THE EASTERN UNITED STATES. French, J. B. Lippincott Company. Cloth. 102 pages. 83 illustrations. Price \$2.00.  
What delight must the student of Lepidoptera experience who can claim proprietorship to the above book. We find here, as stated by the author in his Preface, "a brief description of the several stages of butter-

flies, methods of capture and preservation, an analytical key, and a more complete description of all the species that have been found in this region. In the latter part, the preparatory stages are given so far as they are known." It describes all species known east of Texas, Indian Territory, Kansas, Nebraska and Dakota. The arrangement of species and nomenclature is the same as in Edwards' "New Catalogue of the Butterflies of North America." For many years the student of zoology has been handicapped for want of an inexpensive manual to assist him in his efforts at classification. Mr. French fully realized this want when he set about to prepare what he has so successfully accomplished. Excepting the eleven illustrations prepared expressly for this work, the remainder were borrowed from the publishers of such books as "Saunders' Butterflies," Packard's "Guide to the Study of Insects," Saunders' "Insects Injurious to Fruits," Tenney's "Elements of Zoology," and from U. S. Entomologist, Prof. C. V. Riley. To non-classical scholars, the annotated list of the 201 butterflies, of the Eastern United States will be of incalculable benefit. The analytical key, following immediately after, will enable all to readily determine each species described. The Glossary is another excellent feature that will find favor even with the more advanced collector. The work also has an excellent index. We fail to see how any Naturalist, be he amateur or advanced, can afford to be without this valuable little book in his library.

## A CORRECTION.

The foot-note at the bottom of the first column on next page states that there are 25,000 students at the normal school. It should read 2,500.

## Chicago & Grand Trunk R'y

Condensed Time Table of Passenger Trains.

Corrected January 2, 1888.

## THE NIAGARA FALLS AIR LINE.

WESTWARD.						EASTWARD.					
No. 10	No. 6	No. 4				No. 1	No. 3	No. 5			
Ex. Sun.	Daily	Ex. Sun.	P. M.	A. M.	P. M.	Ex. Sun.	Daily	Daily	P. M.	P. M.	P. M.
12 40	8 10	6 25	ar	Chic. lv	9 05	3 25	8 13				
11 42	7 12	5 25	R. I. Cross'g		9 59	4 20	9 14				
11 17			Maynard		10 15						
10 58			Redeedsdale		10 40						
10 36	5 52	4 05	Valparaiso		11 15						
10 30					11 75	5 30	10 29				
10 15		2 43	Haskell's		11 47						
9 53			Stillwell		12 25						
9 00	4 07	2 28	South Bend		1 15	6 51	12 61				
8 40	3 45	2 45	Granger's		1 22						
8 17	3 19	1 45	Cassopolis		1 45	7 20	12 45				
7 52		1 16	Marcellus		2 15		1 07				
7 30	2 32	12 55	Schoolcraft		2 31		1 27				
7 18	2 21	12 45	Vicksburg		2 41	8 11	1 45				
6 30	1 26	12 05	Battle Crk		3 40	8 50	2 20				
A. M.	1 15	11 45	a		1 34	8 57	2 38				
	12 25	11 0	Charlotte		5 42	9 37	3 25				
	11 55	10 30	Lansing		5 50	10 07	4 00				
	8 55	7 15	Pt. Huron		10 20	1 15	7 25				
	P. M.	A. M.			P. M.	A. M.	A. M.				
Ex. Sun.	Daily	Daily			Ex. Sun.	Daily	Daily				

## VALPARAISO ACCOMMODATION.

No. 36	No. 10	No. 11	No. 3
Ex. Sun.	Ex. Sun.	Ex. Sun.	Only
P. M.	A. M.	P. M.	P. M.
11 00	9 45	Chic. lv	4 25
8 55	8 30	R. I. Cross'g	1 10
8 29	8 03	Maynard	5 52
8 11	7 45	Redeedsdale	6 12
7 38	7 05	Valp'so a	7 00
A. M.	A. M.	P. M.	P. M.

Where no time is shown at stations, trains do not stop. All trains run by Central Standard time.

GEO. B. REEVE, W. J. SPICER,  
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